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*On the Pathology of Epilepsy.* By ROBERT REID, M. D. &c.

(From the Transactions of the College of Physicians in Ireland.)

Medical science has made such rapid advances within the last few years, that an immense number of important facts have been developed relative to the nature of diseases. Though the human mind may be incapable of appreciating the modes of action of ultimate causes, yet the laws which are obeyed in the animal frame are fixed and immutable. Many of the errors, both in the theories of diseases and in the modes of treating them, may be attributed to physicians mistaking effects for causes. In no instance is this more conspicuous than in the history of the disease called Epilepsy. Although the enumeration of writers who have treated on this subject would occupy a volume, yet the last elaborate author (Dr. Cooke) is compelled to acknowledge, that much is still to be known before the true nature of the disease can be understood.

About eight years ago, when attending the hospitals of the House of Industry, with the late Dr. Edward Percival, our attention was particularly directed to ascertain the efficacy of spirit of turpentine as a remedy, at that time recommended for the cure of epileptic diseases. While studying the phenomena incidental to such a formidable disorder, I felt convinced that an extensive field for investigation lay yet untried, notwithstanding all that had been written on the subject.

Early in the year 1817, I laid before the public a treatise on Tetanus and Hydrophobia, in which it was stated, that the moving powers of the human frame are under the influence of the nervous mass situated in the spinal column, and that they hold to that mass as to a reciprocal centre. This idea is now very generally adopted. In considering the phenomena of epilepsy, a derangement of the moving powers forms the first and most characteristic feature of the disease : it, therefore, should be ranked among those diseases to which what I have denominated the *spinal system* is liable.

Pure epilepsy is very seldom fatal. In thirty-four cases which came under my notice, two only died of the disease, who, on examination after death, exhibited no morbid appearance sufficient to account for death, until the spinal column was opened along the cervical vertebræ, when the membranes enveloping the medullary mass appeared covered with a minutely injected vascular tissue.

The morbid states of other parts, particularly in the head, which have been the immediate cause of death in cases previously subject to epilepsy, can only be considered the consequences ; for similar states have been met where no such disease attended. It is important to be aware, when investigating the diseases incidental to the spinal system, that they frequently run into each other. Thus a person, while under treatment for epilepsy, may suffer tetanic spasm, then chorea, then catalepsy, &c. A case of this kind occurred to me not long since, of which the following is an abstract :—

June the 8th, 1818.—Mr. —, ætatis eighteen, subject to epilepsy ; has no apparent malformation of the head. Has been several years affected with the disease, the commencement of which he attributes to fright. Remarks that his memory is of late very much impaired. The fits are very frequent, sometimes twice a week, sometimes three times in the same day. Is generally attacked early in the morning, without any previous notice, or a sensation of cold in any part of the body. The pulse is very contracted, irritable, and quick. I determined, if possible, to see him during the paroxysm ; and in five days after, (13th of June,) on visiting him about eight o'clock in the morning, when he was dressing, I found that there was not the slightest pulsation at either wrist, which previous observation in other cases enabled me to conclude was the indication of an immediate attack. In two minutes afterwards he fell in the fit. The upper extremities were particularly affected, with general tendency to emprosthotonos. When the spasmodic actions had almost subsided, the pulse became enlarged, soft, and regular.

The next fit was on the 19th of June : he was ordered a blister between the shoulders, over the spine, with directions to keep it open for some time ; but he allowed it to heal, and had another fit on the 26th. He, however, appeared to improve in every respect.

A fit occurred on the 1st of July, when he was ordered a purgative, with spirit of turpentine, to be repeated every morning. This, at first, seemed to induce giddiness and sickness at stomach. It caused copious evacuation from his bowels, and a frequent desire to pass urine, attended with some smarting and irritation at the extremity of the urethra.

July 18th.—Since 26th June he has had no fit. The irritation of the urethra still continues severe. A few drops of blood are discharged after passing urine. The quantity of turpentine has been gradually lessened to five drops every morning.

August 1st.—The effects of the turpentine have, for some time, entirely ceased, and he had a fit yesterday. He could not be persuaded to continue the turpentine.

August 30th.—Has had several fits since the 23d, and his mental powers are very much impaired. This evening, he is delirious at intervals, and complains of severe pain following the course of the nerves of the lower extremities, with frequent sensation of cold along the spinal canal, sometimes ascending towards the head. He then feels violent pain in the occiput, extending towards the central regions of the head. He soon after speaks delirious. During one interval, he mentioned that he distinctly saw a crab upon his pillow ; but that he knew it was only imaginary, yet could not prevent such an impression on his vision.

August 31st.—Has frequent tetanic spasms of various muscles, but no difficulty of swallowing. The cerebral affections have been relieved by leeches and cold affusion to the head, and active purgatives. During the operation of the purgative medicine, he had strong tetanic spasms of the parts which were usually affected in his epileptic paroxysms. Has no pain of head ; perspiration copious ; tongue white in the centre ; pulse quick, but soft and regular. The tendons of his wrists and arms remarkably tense. Has now some inclination to sleep.

September 1st.—Remained easy during the night ; has had slight cramps in the lower extremities, and is often affected with convulsive laugh, which he says, he cannot avoid, though he knows no cause of it. Pulse quick ; head hot ; tongue furred. Leeches were applied to his temples, and the cold affusion to his head ; soon after which, the above symptoms ceased, and he inclined to sleep. His father reported to me, that last night,



while at the night-chair, he became completely cataleptic, but retained the power of vision and hearing. His father desired him to endeavour to move his fingers, at the same time putting his own in a similar motion. After some apparent internal exertion, he succeeded. His father then moved his wrists, and persuaded him to try that also ; after similar exertion he performed that movement ; and so one part after another, until he recovered.

September 3d.—No return of cramp ; skin soft and moist ; rigidity of the tendons gone ; hearing acute ; vision wonderfully improved, so that a glass, which he has been for some time obliged to use, is not required, and does not now match his sight.—His memory and other intellectual powers are natural. Feels his head get giddy after speaking much, and strong light is unpleasant.

September 4th.—Feels well. Has occasionally, for the last two days, a disagreeable sensation of cold in his feet, with inclination to shivering, which goes off by perspiration.

He continued convalescent, without any return of fits, till the middle of September, when he went for change of air into the country. I think it more than probable, however, that, after some time, he may have had a return of the epileptic fits.

I have made choice of the above case, as being the most remarkable for the number and variety of the changes from one spinal disease to another. It is at present impossible to determine the true seat of epilepsy, by the morbid appearances detected in epileptic patients after death : it is, therefore, necessary to combine with them the train of operations which occur during a paroxysm of the disease. By such investigation, the probable sources of the morbid phenomena may be discovered. In all the cases I have had an opportunity of observing, the rapidity of the changes in the morbid actions during the paroxysm, often differed very much ; but the regular succession in which they followed each other was invariable.

As this disease must have been the same in the earliest periods of its occurrence that it is found to be at the present day, I shall refer to the actual operations, as they occur before our eyes, rather than to any written authority on the subject. This I am the more inclined to do, as the unfortunate frequency of the disease may enable every practitioner to judge for himself.

By considering the phenomena according to the regular train in which they are developed, it would appear that each succeeding occurrence is the natural consequence of that immediately preceding. It will be found, on careful attention, that the first symptom of an attack is the suspension of the action of the



heart, and consequently an intermission of the pulse, which may continue from a few seconds to about three minutes, which was the longest period of intermission I have as yet known.

The *aura epileptica* can only be considered a premonitory symptom ; for, in many cases, it never occurs. If all the other powers which contribute to circulate the fluids in the animal frame became quiescent at the time the heart ceased its activity, the well-known phenomena of fainting would be the consequence. But, during the epileptic quiescence of the heart, it appears that an accumulation of blood is taking place in another direction ; for immediately, often instantaneously, a tetanic rigidity of the entire frame succeeds, during which the air is sometimes so suddenly expelled from the lungs, that the patient utters a piercing shriek. I have seen patients hop five or six times on both feet, with their bodies perfectly rigid, before they fell. It has been attempted to prove in the Treatise before referred to, that the tetanic rigidity of all the muscles of the frame was consequent upon accumulation of blood, or other irritation in the spinal nervous mass. That this is the case in the present instance, is confirmed by the examination of those cases which have proved fatal after only a few paroxysms, and before the injurious effects of the disease were conspicuous in other parts. When this accumulation amounts to compression of the nervous structure, the patient falls, and all the parts are for a moment relaxed. The animal economy now imperiously requires the function of respiration, which had been suspended during the phenomena before mentioned ; but this suspension of respiration was gradually causing an accumulation of blood in the head, so as to bring the brain into an apoplectic state, by which means the control of the brain over muscular action is interrupted.—Hence arise the irregular actions of the complicated organs of respiration, forming those convulsive struggles which are so peculiarly characteristic of this disease.

It is at this period that the unfortunate patient may have the paroxysm almost instantly terminated by mechanical means. Though it may be more proper to defer stating any mode of relief, until speaking of the treatment of the disease in general, yet the means alluded to tend to elucidate so much the nature of the convulsions, that they could not with advantage be omitted at present. Careful observation in a number of cases has convinced me, that there are two modes by which the convulsions may be suppressed, until the brain recovers influence sufficient to direct the muscular activity. During the inordinate struggle to perform respiration, the practitioner may abstract some of the force applied to the respiratory organs, by attracting the exer-

tion in another direction. Thus, while the hands and arms are violently contracted, if the attendants forcibly extend them, and open the fingers, so much exertion is involuntarily made by the patient to oppose this, that the violent operation of the respiratory muscles subsides, the organs fall into their natural train of action, the patient draws a heavy sigh, and the paroxysm is at an end. Any unusual irritation may have this effect ; among others, that which is stated to have been tried by Dr. Pickels, in his important paper "on the Discharge of living Insects from the Stomach." The other mode of putting a stop to the paroxysm, as far as I have experienced, is much more powerful, as it operates by suppressing the powers which excite the muscles into action. The peritoneum appears to be connected by the strictest sympathy with the nervous apparatus of the spine ; for, when tetanus takes place, the tension of the peritoneum is one of the first remarkable symptoms ; and it is well known what extreme debility attends contusion, inflammation, or other injury of this membrane.

When making experiments some time ago, for the purpose of ascertaining what part of the animal frame was particularly acted on by *nux vomica*, when taken in excess, I found that the animals (rabbits and dogs,) in a short time after receiving the poison into their stomachs, became tetanic. During the spasm, I observed that the peritoneum seemed closely to invest and compress the contents of the abdomen. Upon pressing forcibly a part of this membrane between my fingers, for the purpose of detaching one portion of it, so as to relieve the supposed compression of the bowels, I was rather surprised to find the spasms totally relax, and the animal begin to breathe, as if recovering from much fatigue. The moment the peritoneum was let loose, the spasms returned with violence ; and this could be repeated at pleasure.\*

When reflecting upon this curious phenomenon, it appeared to me that, were it possible to afford the necessary compression of the peritoneum in the human subject, while labouring under a paroxysm of epilepsy, that the fit may be as instantaneously cut short. Opportunities were not long wanting for putting this operation into practice, and it was attended with the utmost success. The manner in which this may be accomplished, is by

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\* It may be worthy of observation, that, after repeating the above experiment of alternately compressing and letting go the peritoneum several times, the animal at length ceased to be affected by spasm ; although, upon killing it, the poison was found still remaining in the stomach and small intestines.

pressing the closed hand of an assistant forcibly on the soft part of the abdomen, towards the spine, while the patient is firmly supported on the back, with the head and shoulders raised.— While this operation is performing, the practitioner will often perceive a very peculiar flapping of the diaphragm, without apparently contributing to the purposes of respiration. This I have most usually met in puerperal convulsions. When it is considered that the consequences of epilepsy are still more dreadful than the disease itself, and that the most severe of these, such as idiotism and insanity, are caused by the effects of the disease upon the cerebral structure, it cannot be doubted how important to the community at large any mode would be which could thus cut short the paroxysms, and obviate those injurious effects upon the brain.

I have endeavoured to show that the symptoms which occur during a paroxysm of epilepsy follow an invariable course, each depending on the other as cause and effect. It has also been perhaps sufficiently proved, that the immediate cause of a paroxysm of the disease should be attributed to a morbid accumulation of blood upon the nervous mass of the spine.

Having advanced so far, perhaps at some future period the observation of Celsus may be found applicable to the circumstances of this disease, when he says, “*Et causæ quoque æstimatio sæpe morbum solvit.*”

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## II.

*Cases shewing the Influence of Pressure and Rest in the Treatment of Fractures of long standing.* By J. AMESBURY, Esq. M. R. C. S. F. L. M. S. &c.

(From the London Medical Repository.)

The causes of non-union of bone are various, but, I believe, it will be found that there are very few cases which do not arise in consequence of proper adaptation and rest of the broken extremities, not being maintained during the recent state of fractures.

The following cases tend to prove, that the means which are usually employed in the treatment of recent fractures, are insufficient to prevent non-union, and also to shew what advantage may be derived, in the treatment of non-union, from the employment of such mechanical contrivances as will enable us to press the fractured surfaces together, and, at the same time, prevent them from moving upon each other.



Nov. 29th, 1822.—As Mr. Wallack, the actor, was travelling from New-York to Philadelphia, the coach was upset ; and he was thrown from the coach-box into the road. The body of the coach, carrying a heavy load, fell upon his leg, and produced a fracture of both bones, through the upper and middle thirds. The upper fracture was single, the lower compound. The compound fracture was not attended with much laceration of the integuments. There were two wounds which led to the fractured ends of the tibia, each of which was about half an inch long. Splints were applied to the limb, and he was conveyed to Brunswick, New-Jersey, a distance of about fifteen miles, where he was put to bed, and the limb placed upon the outer side. The tension that came on in the limb was great ; but the constitutional symptoms which accompanied it were not severe.

Jan. 6, 1823.—It was now considered that the bones were consolidated, but neither of the wounds was yet healed. On the 11th it was discovered that the lower fracture of the tibia was not united. A scale of bone, about an inch long and half an inch wide, was now taken away, and he was again confined to bed, with the limb lying, between splints, upon the side.

After the dead bone was extracted, the wounds healed readily ; and then various means were resorted to, under the direction of some of the most eminent Surgeons in America, with a view to bring about union of the bone. Among these were friction and tight bandaging, accompanied with confinement in the horizontal position. After these means had been tried without benefit, he had splints applied very tightly upon the limb, and he was directed to leave his bed, and move about with the assistance of crutches ; but this mode of treatment was equally unsuccessful, and he states that, while he was trying it, he frequently felt the broken ends of the bone grate upon each other.

Finding all the efforts that had been made to produce union of the bone were unattended with any beneficial result, he came to London for further surgical assistance ; and on 22d of June, 1823, I saw him, in company with Sir Astley Cooper and Mr. Tipple.

He could at this time bear the foot to rest upon the floor, so as to support the superincumbent weight of the thigh which was thrown upon it, as he sat in a chair, but no additional weight could be borne. The only fracture which remained disunited, was that which extended through the middle third of the tibia. This was oblique. Motion and crepitus were easily produced in the fracture. The foot was extended, the ankle fixed, and the limb was weak and useless.

I applied my apparatus\* for fractures, &c. of the lower extremities, in such a manner as to press the fractured surfaces closely together; and directed him to take an airing every day with the assistance of his crutches, or in his gig. Severe rheumatic pain came on in the fracture the following night; but subsided altogether in a few days. This mode of treatment was persevered in for forty days, and at the end of this period the bone was found united. He states that from the moment the apparatus was first applied, he never felt the least motion in the situation of the fracture.

Mr. Wallack enjoys good health, and possesses an excellent constitution. He has seldom suffered from illness, and whenever he has received a flesh wound, it has speedily healed.

John Ballard, aged twenty-three, was admitted into St. Thomas's Hospital, under Mr. Green, Dec. 5th, 1822. This man had an old transverse fracture of the tibia, extending through the middle third of the bone. He had no swelling in the limb, nor pain in the fracture. Motion between the fractured surfaces was easily produced, and was very evident when the limb was examined. Whenever he moved the limb, he felt motion between the fractured surfaces very distinctly, but it gave him no pain. He could bear the foot to rest upon the floor as he sat, but could not suffer any weight to be placed upon the knee. The limb was weak and useless.

He states that the accident which occasioned the fracture, happened on the 24th of Aug. 1822. He was letting down a cask of lead into a cellar, and, as he was standing on the ladder, the cask overpowered him, and fell. When the cask had fallen about three feet, the keen edge of the end pitched upon the ladder, and upon his leg, snapped the ladder, and, as I am informed by the Surgeon who first saw him, produced a simple fracture of both bones of the leg. He was conveyed in a coach about a mile, and put to bed, and his leg was laid upon the outer side on a pillow. An evaporating lotion was applied to the limb, which soon became very much swelled and very painful. Six days after the tension was considered to be sufficiently reduced to allow of the application of common splints. He was kept in bed three weeks after the application of the splints, with the limb lying upon the heel. At the end of this time he was suffered to leave his bed, as his Surgeon conceived that the common splints were sufficient to prevent motion from taking place

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\* We refer those of our readers who are unacquainted with this apparatus, to a description of it in the 113th page of the 19th volume of the *Medical Repository*, (Old Series.)



in the fracture. He moved about with the assistance of crutches, wearing the splints, and carrying the limb in a sling. At the end of the fifth week, it was discovered that the fracture was not united, and that the leg was much deformed. A bandage was now applied tightly round the leg; over this, splints of split deal so as to incase the leg; and over the splints of split deal, a pair of common leg splints. He was now confined to bed again, for three weeks, with the limb lying upon the side. At the end of the three weeks, he was again allowed to get up, and move about as before, with the limb confined in the splints as last applied. He continued this plan for three weeks, making eleven from the time of the accident. At the expiration of this time the splints were taken off; and it was found that the tibia was still disunited. He was confined to bed a third time, and had a stimulating liniment rubbed upon the leg every day, the limb lying upon the side without splints. This plan was continued till his admission into the hospital, but without any beneficial effect.

Dec. 9.—Mr. Green politely offered me the superintendency of the treatment. The apparatus was applied so as to press the broken ends of the bone firmly together. He was furnished with a sling, and directed to walk about every day as much as he pleased. At the expiration of thirty-three days, during which he occasionally felt rheumatic pains in the fracture, which however were never severe, the apparatus was taken off, and the bone was found united. He informed me that he never felt any sensation of motion in the fracture, after the apparatus was first adjusted, though he had noticed that it frequently took place while he was wearing the common splints, notwithstanding they were applied so tight as to give him great pain. Ballard is a strong man, possessing a vigorous constitution. He may be said to have always enjoyed good health, and he states that whenever he has received a flesh wound, it has healed very rapidly.

J. Van W——, Esq. aged twenty-eight, in endeavouring to quell the negroes in Demerara, on the 18th of Aug. 1823, was wounded by a musket-shot, which passed through the leg about six inches below the knee, and produced a fracture of both bones. He was carried home, and when the limb was examined, it was found that the tibia projected about an inch. The Surgeon, not being able to reduce the bone into its proper situation, sawed off the projecting portion. He was then placed in bed, with the limb lying upon the outer side, and such means were resorted to as were thought advisable to preserve the leg; and he states, he was attended “with the utmost care.”

High inflammation came on, and was followed by profuse suppuration. He remained in bed, in this position, three months



and nine days, without once being permitted to have it made, for fear of disturbing the fracture. During this time the discharge continued very great, and he became much reduced.

In December he had so far recovered, as to suffer himself to be wheeled about the room on a sofa. At the latter part of Jan. 1824, he began to use crutches, and in the middle of February he went out in a gig. Some bits of bone were taken away during his confinement, and the wounds were healed. After the lapse of seven months, finding the limb entirely useless, he resolved to embark for England.

He arrived in London, and on the 6th of May called on me from the recommendation of Sir A. Cooper, who had informed him that the bone was not united. I examined the leg, and found a loose fracture of the tibia, extending obliquely downward and backward, accompanied with riding of the fractured ends. The fibula was united, and the part which had been fractured was surrounded with a large quantity of callus. Whenever he moved the leg, he felt motion in the fracture. The limb was very weak. He could suffer it to rest upon the floor as he sat in a chair, but any additional weight thrown upon the leg gave him pain in the fracture.

May 9th.—I applied the apparatus, first in such a manner as to bring the broken ends of the bone as nearly as possible into their proper situation; and having done this, as far as the state of the parts would allow, I regulated it as in the other cases, so as to press them closely together, and to prevent any motion from taking place between the fractured surfaces. He was furnished with a sling, and desired to go about with the assistance of crutches, or in any convenient vehicle, as much as he pleased, taking care not to exert the muscles of the limb. He soon felt considerable pain in the fracture, which subsided in a few days; and having never been in London before, he now took every advantage of the liberty I gave him; but he states that he never felt the least motion in the fracture after the apparatus was applied. At the expiration of thirty-three days I removed the apparatus, and found the bone was firmly united. On the 25th of June he was able to walk about the house with the assistance of a cane only, without experiencing the least sensation of weakness or pain in the fracture.

Before he left England, which was in about seven weeks after I first saw him, inflammation was set up in the soft parts, a little distance from the part of the bone that had been fractured, which led me to suspect that some spiculæ of bone were lodged in that situation. This, I was induced to believe, might be the case, though they had not been previously productive of any

mischief which led to a suspicion of their existence. He walked about considerably, sometimes the distance of a mile. This, I conceived, might cause them to irritate and produce inflammation, which it was to be expected would run on to suppuration, preparatory to their discharge. In a letter which he has favoured me with from France, dated 2d of August, he states that these have since come away.

This gentleman's health has always been such as we see in persons who possess strong constitutions, and he is certainly one of the most healthy-looking men I ever saw.

These cases, which, it appears to me, may be attributed to the insufficiency of the mechanical contrivances employed to preserve apposition and rest, shew the efficacy of my apparatus in bringing about the union of the bones of the leg after the lapse of many months.

As these patients were permitted to be about, it may occur to some of my readers that friction was produced between the broken extremities of the bone, and that ossific inflammation was set up in the same manner as when a patient, with short splints tightly bound round the leg, is ordered to bear upon the limb; but this was not the case. The ossific inflammation was set up by the *pressure*, not by the combination of *pressure and friction*, which happens when the patient bears upon the limb, secured only by short splints in the usual way.

The practice of directing patients to walk upon the limb, secured by short splints only, from all I can learn, but seldom succeeds; and I suspect that the principal cause of failure is the frequent production of motion in the fracture—an evil which is effectually got over by the use of the apparatus which I have employed, as may be seen by referring to the cases.

Some Surgeons may conceive that motion between the divided surfaces does not impede the progress of union; but I am disposed to believe that I shall hereafter be able to prove the fallacy of this opinion. We must have a certain action in the part, which may be brought about by the immediate effects of the injury or by pressure; but, in addition to this action, local rest is necessary in order to ensure a favourable result.

The cases I have related satisfactorily prove to my mind, that we have no reason to apprehend the occurrence of non-union from the practice I have recommended in the treatment of recent simple fractures of the leg; and I presume it will scarcely be argued, that an apparatus that is capable of effecting a cure in cases of long standing, is at the same time likely to occasion such cases when employed in the treatment of recent simple fractures, provided it be properly applied. If this be granted;



and I think it cannot be denied, I must assume that the mere existence of a fracture in the leg will be seldom sufficient to authorise us to confine a patient to bed till the consolidation of the bone is effected. He may be permitted to leave his bed a few days after the accident, and will thus be saved from the irksomeness of remaining so long in one position as is necessary for the union of the bones, and from the debilitating effects which long confinement in bed produces upon the constitution.

March 16th, 1823.—Richard Holdway, aged twenty-nine, was admitted into St. Thomas's Hospital, under Mr. Travers, having a transverse fracture of the thigh, which extended through the bone a little above the condyles. The third day after his admission, he was attacked with cholera morbus, which continued for a week, and reduced him so much, that he was not able to assist himself in the least when he wanted to be placed upon the bed-pan.

On the 22d, Mr. Travers, with his usual politeness, offered me the superintendence of the treatment of the fracture. The short splints which had been applied were now taken off; and there was no swelling nor any appearance of inflammation in the limb. Assisted by his apprentice, Mr. Macmerdo, I applied my apparatus for fractures, &c., of the lower extremities, in the manner I have directed that it should be used in such cases; and requested him to have his bed made every two or three days; and to have the limb moved, passively, as often as he wished. This mode of treatment was followed for two months, but without any appearance of union.

May 22d.—The apparatus was now applied so as to press the broken extremities of the bone closely together, but the pressure kept up was but slight; and, in order to ascertain whether the motion which was from time to time given to the limb had any effect in preventing the union, I directed the man to remain quietly in bed in one position, and ordered him not to have his bed made above once in three weeks. This plan was persevered in till the 23d of July, making a period of four months from the time the apparatus was first applied; but neither was there at this time any appearance of ossific inflammation having been set up.

An additional apparatus was now employed, in order to press the broken ends of the bone strongly together. He soon felt pain in the fracture after this, which he compared to the pains of rheumatism. This pain was greater sometimes than others, but was never severe. On the 28th of August, the fracture was again examined by Mr. Travers and myself, and it was at this time found much firmer. The apparatus had now got out of



order, and, in consequence of some delay, it was not reapplied till the 11th of September; but, in the mean time, great care was taken to keep the limb quiet. October 14th the apparatus was removed, and the bone was found united.

In this case we see the effect which a debilitating disease has in retarding the union of a fracture; and that when the action, which appears to be necessary to the production of callus, is once so entirely subdued as in this instance, it does not readily become re-established. Though I had previously treated three cases in the same way with the happiest results, I had some doubt whether, in consequence of inattention, the motion, which was from time to time given to the limb during the first two months, was at all influential in preventing the union; but this doubt was removed by the subsequent treatment, in which, notwithstanding the limb was kept quiet in one position for two months, no ossific action was set up till the strong pressure was applied. It appears to me, therefore, that the want of union in this case may be fairly attributed to the effects of the disordered and debilitated state of the system, from which he recovered but slowly; and that the action necessary to the production of callus was brought about by keeping the fractured surfaces strongly pressed together, as in the preceding cases. Strong pressure was applied for sixty-nine days, and the man recovered without the least deformity in the limb.

John Nickling, aged twenty-seven, was admitted into Guy's Hospital, under Sir A. Cooper, July 17th, 1821. He had a transverse fracture of the right arm across the middle, occasioned by a blow from a heavy body. *Liq. plumbi subac. dil.* was applied for a week. The limb was then put up in the usual way with splints, extending from the elbow to the shoulder. He had no pain of consequence after the first week. The splints were removed at the end of six weeks from the time of the accident, and it was discovered that the bone was not united. All tenderness in the fracture had subsided; and the broken ends of the bone could be moved in all directions without producing pain.

The fractured bone was now enclosed in a leather case, and the limb was placed in a tin trough, bent to a right angle, and made long enough to extend from the shoulder to the wrist; and he was ordered to support his arm with a sling. The straps which secured the leather case were occasionally buckled tighter, as the muscles of the limb wasted, in order to keep up strong pressure upon the fractured bone. This plan was continued till the 11th of May, 1822, but without success. He still felt

the yielding and motion in the fracture, which were evident when the limb was examined.

I was now present when Sir A. Cooper examined the fracture, and requested him to allow me to try the effect of the apparatus, which I have described, for fractures of the humerus, before he proceeded to operate, to which he politely consented. The apparatus was applied, and the man was directed to carry the arm in a short sling. The broken ends of the bone were pressed strongly together for six weeks; and at the expiration of this time the apparatus was taken off, and the bone was found firmly united, and as straight as the other.

During the time he wore the apparatus, he had occasionally pains in the fracture, which he compared to those of rheumatism. These were at first rather severe, and the part felt sore; but both the pains and the soreness gradually subsided.

This case occurred in a strong man whose health had always been good.

March 13th, 1823.—James Game, a shoemaker, aged twenty-eight, was admitted into St. Thomas's Hospital, under Mr. Travers, having an old fracture of the humerus just below the head. The accident was occasioned by a sudden jerk of the arm, in consequence of the thread giving way, as he was in the act of pulling it when mending a boot. At first, he had common splints applied in the usual way; but it is evident that they had little power over the fracture, as he had always found the broken ends of the bone grate whenever he moved the body or the limb.

In this case the fracture had existed thirteen weeks. Mr. Travers politely called my attention to it, and allowed me to try to bring about a union by the same means which I had already found eminently successful. I examined the limb. The man could not move the arm from the side. The fractured part was sore; and crepitus was easily produced by rotating the lower part of the bone, while the head was fixed upon the scapula, by means of the fingers. The apparatus for fractures of the humerus was now applied, in the same manner as in the last case, and was worn for thirty-two days; and at the end of this time the bone was found united.

The pressure kept up soon produced pain in the fracture, which was at first rather severe; but it subsided in the course of a few days.

This patient had not the appearance of a strong man, but he states that his health has always been good; having never experienced any illness, except such slight occasional attacks as the strongest men are subject to.

As John F., Esq. M. P., was returning from Winchester, in a



very dark night, about the 20th of July, 1822, the horses got off the road, and precipitated the carriage into a gravel pit nearly ten feet deep. He felt the left arm, just above the elbow, very much stunned by the fall; and, upon endeavouring to rub the part with the other hand, he discovered that the bone was broken. He immediately sent back to Winchester for his professional attendant. He was bled; and, in about three hours from the time of the accident, the fracture was reduced and put up in splints, in the usual way. The splints were readjusted on the third day, and afterwards every seven or eight days, till it was thought they might be safely removed, which was at the expiration of about six weeks. The limb at this time appeared perfectly straight. The arm felt weak, and could not be raised from the side without great effort; but it was believed that the bone was united. After the splints were removed, he carried his arm in a cradle for a considerable period. In the month of November, he was thrown from his horse, but was not aware that the arm received the slightest injury from the fall. Some time after this it began to feel much weaker than before, so that he was obliged to desist from attempting to carve or to raise the arm from the side. After two or three days, he again recovered the use of the limb in a slight degree as before; but it had been for some time becoming gradually deformed, and he observed that, in proportion as he attempted to use it, the deformity increased, and also the weakness, accompanied by a sensation of tightness over the fracture. In April, 1823, Mr. Segar, of Cheltenham, saw it, and expressed his belief that the bone was not united. This opinion was afterwards confirmed by Sir A. Cooper, Mr. Brodie, and myself.

On the 6th of June, 1823, in consequence of the recommendation of Sir Astley Cooper, I was requested to see this gentleman, in company with Mr. Brodie; and, upon examining the limb, I discovered a fracture extending obliquely downward and inward, a little below the middle of the bone. The limb could be readily bent at the fractured part, and was much deformed and shortened from the riding of the fragments. On the 7th of June I applied the apparatus for the treatment of fractures of the humerus. By means of this, my first object was to remove the deformity as much as possible. This I fortunately succeeded in accomplishing in a few days, so far that the broken extremities overlapped only in a very slight degree, and they were now brought into tolerable apposition.

I conceived it probable that, in this case, there was a considerable quantity of ligamentous matter thrown out between the fractured ends; and that, after the lapse of so long a period,



a more than ordinary degree of pressure might be required to produce its absorption. In order to save time, therefore, I immediately contrived an additional apparatus, furnished with a screw, by means of which I was enabled to produce any degree of pressure I thought requisite, in the longitudinal direction of the bone ; and to regulate it with the greatest facility. The additional apparatus was first employed on the 17th of June ; and strong pressure was kept up in the lateral as well as in the longitudinal direction. The pressure which I had previously employed produced some pain in the fracture, which now become very severe. The pain continued severe for a few days, and then gradually subsided.

July 26th.—The apparatus was removed, and the limb was examined by Mr. Brodie and myself, and now only a very slight degree of motion could be discovered in the fracture. The apparatus was reapplied ; and as the limb was so far recovered, we thought that Mr. F. might return to the country with impunity for the remainder of the period during which it was advisable that he should wear the apparatus. At the expiration of three weeks more, it appeared that the apparatus might be with propriety discontinued. Having received instructions how to proceed, he left town with the intention to return at the end of this time ; but in consequence of some business which detained him, he did not come back till the 24th of August, when the limb was again examined, and the bone was found united.

When this gentleman had recovered the use of the limb, I requested him to allow me to ascertain the degree of shortening which remained ; and upon measuring from the point of the acromion over the outer condyle to the edge of the ulna, I found that it is only the length of a barley-corn shorter than the other.

Mr. F. possesses an excellent constitution, and enjoys good health, which was in no way impaired during the existence of the fracture.

The cases I have above related, as well as those I have before published, are much in favour of the treatment of non union by pressure and rest, and tend not a little to shew the inadequacy of the usual modes of treating recent fractures, so as to prevent that state of the fracture which is called non-union—a state which has been hitherto found so difficult to treat, that Surgeons have seldom been able to succeed in their attempts to produce consolidation of the bone.

I shall be glad if the plan I have adopted should be found to supersede the practice of passing a seton through the limb, which, if we may judge from the results in this country, is seldom suc-

cessful, and is to be regarded as formidable and dangerous ; as well as that of sawing off the broken extremities of the bone—an operation which, under my present feelings, nothing could induce me to perform.

In every case of non-union in which I have tried the plan above mentioned, I have succeeded in producing ossific union with almost as much facility as if the fractures were recent ; and I am persuaded that if the treatment I have recommended for recent fractures be properly adopted, non-union will rarely if ever be heard of ; and if it should occur under that treatment, it will be found to arise from some mechanical impediment, such as the interposition of a piece of dead bone between the fractured surfaces, some disease in the bone, or *evident* constitutional disease or derangement.\*

### III.

*Elemens d'Anatomie Generale, ou Description de tous les Genres d'Organes qui composent le Corps Humain.* Par P. A. BECLARD, D'Angers.

(From the Edinburgh Medical and Surgical Journal.)

An elementary work on the structure, anatomical characters, and physical properties of the several tissues of the animal body, has long been wanted ; and we think that the present is well calculated to supply the deficiency. Bichat's work on General Anatomy applied to physiology and medicine, was beginning to be somewhat behind the state of knowledge and the progress of anatomical research ; and its descriptive details of organization were perhaps too much blended with physiological principles and pathological conclusions not always established on the most certain foundation. It was, moreover, too long and too voluminous for ordinary readers. In a book on the organization of the elementary tissues, simple and untheoretical arrangement, accurate enumeration of physical and physiological properties, description of organization or minute structure, derived from careful and repeated observation, in the most condensed and abridged form possible, are the chief virtues ; and the book which possesses these qualities in the greatest degree, will undoubtedly be the most useful and valuable. In this respect the single volume of M. Beclard has unquestionably the advantage

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\* In taking this view of the subject, I do not mean to include fractures of the neck of the thigh-bone within the capsule.



of the two bulky tomes of Bichat ; and though it is the only work in the field on the same subject, except the first volume of the unfinished *Anatomy of Dr. Gordon*, it may be said to be the most deserving of the attention of the student, and by no means likely, for some time at least, to be supplanted by any other competitor.

Our readers will probably remember, that in 1821, M. Beclard published additions to the *General Anatomy of Bichat*, and that we gave rather a minute account of this publication in our 71st Number. We then alluded very shortly to the circumstances which rendered such a commentary requisite ; and we gave such a sketch of the state of knowledge as our limits permitted. We may now remark, that the same reasons which then induced M. Beclard to publish his additions, have operated with greater force in requiring the publication of the present work. It is, by the author's acknowledgment, a mere summary of the anatomical course which he has been in the habit of delivering for a period of ten years ; and, though completely independent and perfect in itself, it is the first or introductory part of a general treatise of human anatomy. M. Beclard further acknowledges, that though he has been guided in its preparation by the work of Bichat, he has taken care to add all the most valuable information of subsequent authors ; and we find that he has not only availed himself with advantage of the researches of Moreschi, Meckel, and others, but has also improved several of its departments by the correct observations of Dr. Gordon. The work, indeed, may be regarded as somewhat like Bichat's system, stripped of its speculative digressions and problematical theories, and reduced into a much narrower compass by a more rigid adherence to mere descriptive details,—but adapted to the increased knowledge and corrected views of the present day, by the addition of every thing valuable, from the researches either of former or recent anatomists. Another characteristic of the present work, not always found in those of France, is the scrupulous justice which is done to the individual researches of foreign anatomists,—German, Italian, and English ; and a copious and exact list of references to the writings of those authors who have most distinguished themselves in the investigation of the individual subjects. In this respect, M. Beclard appears to much greater advantage than his predecessor, not only in his more correct acquaintance with the literary history of his science, but in his rigid observance of historical justice to those anatomists, whose claims Bichat has been accused of overlooking.

M. Beclard has commenced his work with an introduction or preliminary dissertation, consisting of two sections ; in the first



of which he treats of the properties and characters of organized bodies, of animals in general, and their divisions into invertebrated animals, vertebrated animals, and of oviparous and viviparous or mammiferous vertebrated animals ; in the second of the human body, of its fluids, of its organs, of organism, of the development and differences of organization, of alterations of organization, of death, and of the lifeless body. In the consideration of the subjects of the first section, the author acknowledges his obligations to the researches of MM. Dumeril, Blainville, Geoffroy St. Hilaire, Lamarck, but especially Cuvier ; and to all who know how much this eminent anatomist has done in elucidating the philosophy of animal bodies, the avowal that his name must have been quoted in every page, will not appear extraordinary or incredible. In the second part, on the human body in general, Reil, Blumenbach, Ackermann, Mehlis, Plenck, Chaussier, Hebenstreit, Hubner, and Lawrence, are the chief authorities. The views are, in general, correct and elaborate ;—to expect them to be original is unreasonable, and, we should almost say, impossible. They are sufficiently minute for the purpose for which they are intended ; as correct as they could be in such limited space ; and the references will enable those who have leisure and inclination to pursue the subject in the works of individual writers, as far as may be expedient or desirable. We do not pretend to enter into any thing like a minute analysis ; as we have often in our periodical labours given such views of this subject as our readers would be inclined to expect from us ; and we may refer them to our article on the “ Additions” of this author for such observations on the nature and objects of general anatomy as are suited for our pages. It may not, however, be unreasonable to glance very shortly at some of the subjects treated by our author in his Preliminary Dissertation. It is good for our professional readers to be gently drawn from the details of mere practice to the philosophical generalities of the physiological sciences ; and an occasional glance at the connection which subsists between organized beings of the most opposite and unlike characters, will prevent them from converting their anatomical studies into a mere enumeration of bones, muscles, nerves and arteries. We are, therefore, not unwilling to take this opportunity of refreshing their ideas on the various forms of organized life. To these reasons we may add, that it is convenient to exhibit a condensed and abbreviated sketch of the result of the observations and reflections of Cuvier and Lamark, by one so likely to do them justice as M. Beclard.

Besides the rounded figure which belongs in general to all organized beings, most animals are externally at least symmetrical,

and divided by a middle, or vertical line, into two similar halves, and their length in the direction of this line is generally more considerable than the other dimensions. The body contains one internal cavity, which receives the alimentary matters, and which is covered by a membrane or internal skin, continuous with the skin of the outer surface. Many animals have circulating vessels, through which the nutritious matter of the intestinal cavity is conveyed to all parts of the body;—respiratory organs in which this matter is submitted to the action of the atmosphere;—and secretory organs in which a part is separated from the mass. They have genital organs, which generally consist in a cavity from which the germs issue. Lastly, most animals have muscles to perform certain motions, senses to receive the impressions of external objects, and a nervous system consisting of lengthened cords, and round concentrated masses. After adverting to the proportion of the animal solids or organs, and the animal fluids or humours, the author proceeds to give general views of the nature of the general organic phenomena, nutrition and generation, and the particular phenomena of animal life, or those of muscular motion, sensation, and nervous power or action. These animal functions, when they exist, exert a considerable influence over those which are merely organic. In that of nutrition, the introduction and transmission of food is accomplished by muscular organs; in that of circulation, muscles of many animals are found at the origin of the vessels; and, lastly, the application of the atmospherical air to the organ of respiration depends on the action of muscles. Organs of sensation are situate at the entrance of the organs of nutrition; and the acts of generation, like those of nutrition, are modified by the animal functions. These general expressions of a group of facts show, that a definite relation subsists between the several functions, which either exist in the animal body, or distinguish it from other living beings.

To these general characters of animal bodies, the particular ones derived from figure, from organ, and from function, and the distinctions thus suggested, succeed. These we shall take the liberty of omitting, not because they are uninteresting or unimportant, but because our readers are perhaps more disposed to study them in the work itself; or in the preliminary dissertations of Cuvier, from which, principally, they are very correctly compiled. We shall, however, lay before them the enumeration of the animal classes and orders adopted by M. Beclard.

After noticing the striking distinction which is established among the classes and orders of the animal kingdom, by the absence or presence of a vertebral column, M. Beclard proceeds



to enumerate the animals destitute of vertebræ in the following order.

I. The animals destitute of vertebræ (*ANIMALIA INVERTEBRATA*) contain three great divisions, the Radiated (*Animalia Radiata*), the Jointed (*A. Articulata, Annulosa*), and the Molluscos (*A. Mollusca*.)

A. The Radiated animals constitute a particular class, of which the essential character is,—that the parts are disposed in the manner of rays round a central point. Their structure, which is simple, prevents nevertheless varieties, from the *hydræ* or armed polypi to the *asteriæ*. All of them inhabit the water.

1. The polypi, a numerous class, are generally elongated, with a single aperture or mouth provided with radiated appendices; they have an alimentary cavity, digest very rapidly, and absorb by imbibition. Their outer and inner surfaces are similar; in the intermediate substance, which is of a homogeneous and gelatinous form, nothing can be distinguished but microscopic globules. They are so regenerative, that if divided, each part becomes an individual. Light, sound, and other external agents, produce in them impressions followed by motions. Some are fixed to the spot, others are free. The most simple are the *hydræ*, which have an alimentary sac, and multiply by germs or buds. Others, which are united, excrete from their outer surface a hard or calcareous matter called Coral (*polypier*.\*) Lastly, in some which are compound animals, the common body envelopes a secreted substance, the consistence of which varies from that of jelly to stone.

2. Of the *acalephæ* or sea-nettles, the shape is most distinctly circular or radiated, and the structure varies. The mouth is in the centre, is furnished with *tentacula*, and leads to a stomach which in many is ramified, but which has no other aperture or outlet.

3. The *echinodermata*, or sea-urchins, are radiated animals, asteroid, spheroid, or cylindrical, with more complex organization. An internal cavity, with distinct organs; vascular productions from the intestine ramified through the body; and distinct outlet from the intestine; aqueducts ramified for the purpose of respiration; ovariform masses for the purpose of generation; muscles, and in most of them numerous *tentacula* terminating in suckers, generally termed feet, are the principal charac-

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\* This term has been introduced into the nomenclature of Natural History by Lamarck, as a general name for the excretions, whatever be their consistence, of that order of animals so long named Zoophytes.—*Histoire Naturelle des Animaux Sansvertèbres*. Tome II. p. 13.



ters of this class. The skin is well organized, and often solid ; and in some we meet with nervous filaments.

B. In the Articulated or Jointed animals, the body is symmetrical, divided externally into a certain number of rings or segments movable on each other, and formed by skin more or less firm, sometimes hard, except in the intermediate spaces where this covering is soft and flexible. Their muscles are attached inside the skin ; their nerves are cords enlarged at intervals, and situated beneath the intestinal canal. Organization of the most varied character is found in this class.

1. Some are vermiform, without head, and articulated feet, and limited to the motion of creeping. These are the *worms proper*, and the *annelides*.

a, In the intestinal worms (*helminthi*,) which have some relation to the radiated animals, the body is oblong, cylindrical or flattened, bare, soft ; no organ of respiration, or of circulation ; and the generation is internal gemmiparous, and sexual, oviparous. They inhabit the bodies of other animals. Their degree of organization varies. In the tape-worms (*cestoides*,) which are the simplest, and resemble a long striped ribbon, marked with a longitudinal line, no external organ, nor even suckers, are perceived,—and internally nothing but egg-shaped atoms.

Others (*trematodes et tenioides*,) of which the shapes are varied, have merely suckers more or less numerous, ramified in some through the body, which also presents other gemmiferous or ovariferous canals. The *acanthocephali* (*echinorhinci*,) have a tube provided with hooks moveable by muscles, two small intestines without outlet, and distinct oviducts, or spermatic receptacles, according to the sex, which is separate. Of the *nematoides*, or cavitary worms, as the *ascarides*, the organization is still more complex. A mouth, an intestinal canal, with proper outlet, skin provided with muscular fibres, generally marked with cross streaks ; distinct genital organs, with marks of separate sex, a dorsal and ventral nervous chord, and two blood-vessels, are the characters of this tribe.

b, In the *annelides* or red-blooded worms, the oblong body is divided into numerous rings, the first of which, forming the head, is different from the others ; and the mouth is either a tube or jaws. An intestine traversing the body ; a double system of arteries and veins without distinct hearts, red blood and branchial respiration ; hermaphrodite genital organs ; muscles, and in many hairy or silky productions (*soies*,) which are used for feet ; a head with tentacula, and in some black points, which are taken for eyes,—are the chief characters of this class.

2. Of the other articulated animals, all are provided with a

head, eyes simple or compound, a mouth, consisting either of lateral jaws or a sucking tube, and complex and varied organs of digestion. Their chest sustains six jointed paws, each joint of which is hollow and contains the muscles which move the next one; their skin is crusted and firm; they have the sense of smell, but its seat is not determined; and their generation is sexual and oviparous. This section consists of three great classes, insects proper, *arachnides*, and the crustaceous animals.

a. The insects proper, or six-footed (*Hexapoda*) animals must be well known to all. A vestige of heart, in the form of a dorsal vessel, to which no branches have been perceived, contains a white fluid, which appears to be conveyed through the body by imbibition. Respiration is performed by branching *tracheæ*, which meet in two principal trunks. The organs of motion are muscles and skin, hardened by a horny matter contained in its substance, six articulated paws, four wings in most, two in some, in a few none. The organs of sensation are compound eyes, in some smooth, ordinarily to the amount of three, *antennæ*, and feelers. They smell and hear, but the organs of these sensations are unknown. It is well known that these animals copulate once only in the course of their life; that the impregnated female deposits its eggs in a convenient spot; and that the egg produces a worm (*larva*) which changes into a chrysalis, when it assumes the appearance of death, and from this issues the perfect insect. All insects, except the *thysanouræ*, and those which are parasitical, (*Anoplura* of Leach,) undergo these changes, to which the general name of *metamorphosis* is given.

b. The *arachnides*, or eight-footed (*Octopoda*) animals, have a head without *antennæ* confounded with the chest, eight legs or paws, and no wings; most of them have feelers; they are subject to *moulting*, or change of skin, but not to metamorphosis. They present two degrees of organization. In the first and most simple, consisting of tracheal arteries, express organs of circulation are not more apparent than in the insects; and those of respiration are branching windpipes distinct from each other. The second, or more complex, consists of pulmonary or branchial arteries, and occurs in spiders, *tarantulae*, and scorpions. These animals have a simple muscular heart, dorsal, elongated, cylindrical, branchial or pulmonary, from which vessels proceed to the respiratory organs which are pulmonary sacs, and thence over the whole body. The sexual organs are double in each sex. Some pair several times and live several seasons. The scorpions are ovoviviparous.

c. The millepedes (*Myriapoda*) form a small group of animals intermediate between the insects, which they resemble in struc-



ture, and the crustaceous animals, which they resemble in figure. Their body is oblong, consisting of a considerable series of rings, each of which supports one or two pairs of feet. The young ones, on quitting the egg, have six feet and seven or eight rings; the other feet and rings are developed as the animal grows.

d. The organization of the crustaceous animals is more complicated. Respiration is performed by pyramidal *branchiæ*, which are lamellar, filamentous, or plumiform, connected generally to the base of part of the feet, sometimes even answering the purpose of these members. Their circulation is double.—The blood which has undergone respiration is conveyed to a large ventral aortic vessel, which distributes it through the body; it then is returned to another large vessel which sends it to the *branchiæ* or gills. They inhabit the water.

C. The Molluscous form a division of invertebrated animals, in which the form is generally symmetrical but without articulations. They consist of the *Mollusca acephala*, the *M. cirrhopoda*, the *M. gasteropoda*, and the *M. cephalopoda*.

a. The *Mollusca acephala* are of two sorts, either destitute of shell, or provided with a shelly covering.

The *M. Acephala* without shell bear some resemblance to the Radiated animals. Some are united into a common body like the polypi; some are of an asteroid shape, with the mouth at the circumference and the outlet in the centre; some form a cylinder in which the outlets terminate, while the mouths are open entirely; in a fourth sort the intestinal organs are prolonged in a common mass, while the radiated mouth and the outlet mutually approach near the free extremity of the body; a fifth, which continue long united after birth, have the shape of a contractile tube, open at both ends, in the substance of which the internal organs are placed; lastly, a sixth sort, which are fixed to rocks, have the shape of two tubes, one inserted into the other, in the interval of which the water is made to pass. All of these have an alimentary canal with two apertures, *branchiæ* or gills, a liver, a heart and ovaries, or internal germs, which produce, without pairing, living individuals; all of them, also, have nervous ganglions and filaments.

b. The *M. cirrhopoda* form a small group of animals intermediate between the molluscous and the jointed animals. The stomach is provided with many minute cells, which seem to do the office of liver; the intestine is single; a dorsal heart, lateral *branchiæ*, a double ovary, or a mass of internal germs, a double serpentine canal for the exit of the young, and a series of nervous ganglions beneath the belly, are their peculiarities of inte-



rior structure. These animals are sessile or pediculated, but in all cases fixed.

c. The *M. acephala*, *conchifera*, with a shell, have the body without head, containing all the visceral organs, entirely invested by the hood folded in two, and provided with a calcareous shell, generally bivalve, sometimes multivalve. The mouth provided with lenticular leaflets covered by the hood; the outlet covered in like manner at the other end; four very large bronchial leaflets; the liver voluminous, containing the stomach and part of the intestine; the foot, when it exists, attached between the four *branchiæ*; the heart single, aortic, placed along the back; a principal ganglion situate above the mouth, united by two nervous chords to another opposite; procreation of live young going on without pairing; and, finally, one or two muscles to shut the shell, and an elastic ligament to open it,—are the chief characteristics of this order of molluscous animals.

The *M. brachiopoda*, which have two fleshy arms in place of feet, and appear to have two aortic hearts, are referred to this head. They are not numerous.

d. The *M. gasteropoda* creep on a fleshy disc placed under the belly. The hood which covers its back varies in extent and figure, and produces generally one univalve or multivalve shell. The head placed before, and more or less detached from the hood, has generally two, four, or six *tentacula* above the mouth, which serve for touch, sight, and perhaps smell. Small point-like eyes are ordinarily found either on the head, or on the *tentacula*. The heart is aortic and single. The other organs vary much.

The *M. pteropoda* form a small group between the *acephala* and the *cephala*.

e. The *M. cephalopoda* consist of a small class of the inarticulated or unjointed animals, the organization of which is most complicated. Like the crustaceous animals, they approach in structure the lowest of the vertebrated animals. Their organic characters are as follow. A soft pulpy body enveloped in a sac formed by the hood, which spreads laterally like fins, and through the aperture of which the head appears, with the feet, or fleshy arms, with suckers for walking, grasping, and swimming; the mouth between the base of the feet, armed with two strong horny jaws; a gullet like a bird's crop; a second stomach muscular as a gizzard, and a third membranous; a single short intestine, terminating in the aperture of the sac before the neck; a double system of arteries and veins; two branchial ventricles and an aortic ventricle; two branchial organs situate in the sac where the water enters and issues for respiration; a large liver

which pours bile, by two canals, into the third stomach, and separate sexual organs. The eye is formed of many membranes, and is covered by transparent skin. The ear is single,—a small cavity on each side near the brain, without outlet, and in which is suspended a membranous sac which contains a small stone.—The brain is enclosed in a cartilaginous cavity, which is the rudiment of a skull.

Such is the immense series of invertebrated animals. They form three divisions or different types, in each of which there is a general resemblance, and different degrees of complication and perfection of organization. The Radiated are the most simple. Some of them approach to the infusory animals; and the most complicated have no central organ of circulation, and no predominant nervous organ. Destitute of these, they are destitute of organic or vital unity. Next to the Radiated come the Molluscs and the Articulated Animals. Their comparative organic superiority it is difficult to determine; for if on the one side the articulated animals are below the molluscs in respect of the vegetative organs and functions, since many have no real circulation which is found in all the molluscs animals, yet on the other side, the latter are below the articulated animals in development and approximation of nervous masses; and, above all, in instinct, which is so perfect in some articulated animals, that it approaches that of the vertebrated classes.

II. The vertebrated animals (*ANIMALIA VERTEBRATA*) constitute a type or mode of organization to which man and the animals most similar belong. By the organs of the vegetative functions, they approach to the invertebrated animals, but differ widely by those of the animal functions. Their body, symmetrical in shape, always consists of a trunk, and, with few exceptions, members. The trunk is sustained through its whole length by a column consisting of movable pieces termed *vertebræ*; which, though partly solid, form a canal for the central mass of the nervous system. The head, at one end of this column, consists of the skull, in which the brain is placed, and the face, which consists of the jaws, and certain cavities for the organs of proper sensation. The rest of the trunk, with or without certain portions of bony matter, forms one or two great cavities for containing the organs enclosed in the vegetative or nutritious functions.

In all the vertebrated animals, the intestinal canal, extending from the mouth to the opposite outlet, and presenting sundry enlargements, is provided with secreting glands; viz. the salivary, the pancreas, and the liver. In all are arteries, veins, a heart variously shaped, red blood, and chyloferous and lymphatic ves-

sels. One class only, that of fishes, have gills, (*branchiæ*;) in the others the breathing organ is a lung. The organ for secreting bile receives the blood returned from the intestines and spleen by the portal vein. All have proper glands for secreting urine, and most have a bladder or receptacle for this excreted fluid. In all, the sexes are distinct; the female has one or two ovaries, from which the *ova* or eggs are detached after fecundation or impregnation by the spermatic fluid of the male. The mode and other phenomena of this process vary in the several classes.

The muscles are numerous, and, except those which form the heart, move the skin, mucous membrane, and organs of sensation, are inserted into bones which they cover and move on each other. Vertebrated animals which have a lung, have also a larynx, though all have not voice. The organs of sensation are two eyes, two ears, two nostrils, the tongue and the skin. But it is chiefly and essentially by the extent and disposition of the nervous system that the vertebrated animals are to be distinguished. We have already alluded to the central mass which consists of a thick cord, or peculiar organic matter, to which the name of *cerebral* or *nervous* has been given, enclosed in the canal formed by the vertebral pieces. To this nervous centre the presence, size, and other properties of which are constant, and distinguish these classes, other portions of definite figure, but various in size and number, are attached. These have been termed, whatever be their variations, brain, and small brain (*cerebellum*.) They are contained in that cavity of the head termed the skull, which they fill accurately in some classes, but imperfectly in others.

The author then proceeds to enumerate certain organs or organic matters, and animal fluids, which belong to particular classes, and under this head adverts briefly to the varying properties of the blood or nutritive fluid, the chyliferous and lymphatic vessels, the bones, and the serous and synovial membranes; remarks the peculiarities of the nervous system, the circulating system, the organs of respiration, motion and generation, in the different classes; and after explaining briefly the modifications of the latter function, under the heads of oviparous, viviparous or mammiferous, and ovoviviparous propagation and parturition, makes the usual divisions of vertebrated animals, and enumerates the peculiarities of each class.

A. Oviparous vertebrated animals are divided according to their respiration, temperature, atmosphere which they inhabit, kind of movements, cutaneous appendages, &c. into three classes, Fishes, Reptiles, and Birds.



a. Of Fishes, the organization is evidently intended for swimming. They are suspended in a fluid as heavy as themselves; and in many, a bladder full of air beneath the vertebral column causes the specific weight of the animal to vary by its compression and dilatation. The shape of the head varies; its structure is complex either in the skull, the lower jaws, or the distribution of the teeth. The number of members varies from total absence to four. The circulation is two fold; the mass of blood passes through a respiratory organ, but the atmosphere is aerated water. For this purpose, an organ termed *gills* (*branchiæ*), consisting of leaflets attached to lateral rings of the hyoid bone, and composed of many membranous plates, covered with innumerable blood-vessels, is placed at the side of the neck; its orifice is covered with a membrane and an osseous opercle. The water which the fish forces into the mouth, escapes between the divisions of the organ, and acts on the blood. The heart has only one auricle which receives the veins of the system, and one branchial ventricle. The blood having traversed the gills, is conveyed to a large vessel under the vertebral column, from which it is distributed to all parts of the body. The genital organs are peculiar. In the male, an organ termed *roe*, of great size, corresponds to the testicles of other animals, and in the female the milt is a proper ovary. In most the eggs are deposited, to be impregnated by the spermatic fluid of the male; in others, which are generally ovoviviparous, copulation and introduction of seminal fluid take place. The senses are not very perfect; the end of the muzzle contains nostrils; the eye consists of a horny, spherical plate, little aqueous fluid, and a spherical lens; the ear is composed of a vestibular sac, in which stony bones are suspended, and three membranous semicircular canals, generally situate in the cranial cavity; in some there is an oval orifice (*fenestra ovalis*.)

It is only in one genus of this class of vertebrated animals that the deviation from the symmetrical arrangement of organs is found;—in the flat fishes, both eyes are on the same side of the head.

b. The Reptiles present in configuration, structure and functions, greater varieties than any of the three other classes. The circulation is simple, and the respiration partial. In other words, the heart sends the blood into an artery, one branch of which only goes to the lung; the result of which is, that in each circuit of the blood part only undergoes respiration. The lungs have the form of sacs or large cells, in which respiration may be suspended without stopping circulation. The blood is cold, or

not warmer than the atmosphere. They are divided into families or tribes, according to varieties in organization.

1. The Tortoise-family (*Chelonii*.) A heart with two auricles, and receiving different blood,—and one ventricle with two communicating cavities, in which both kinds of blood are mixed. They live for months or years without eating, and survive decapitation several weeks.

2. The Lizard-family (*Sauri*) and Crocodiles. Heart as in the tortoise ; ribs movable for respiration ; the lung extensive.

3. The Serpent family (*Ophides*.) Heart with two auricles ; no feet.

4. The Frog-family (*Batrachi*.) Toads and Salamanders.—Heart with one auricle and no ventricle ; lungs. In early life they have gills as fishes, and a similar circulation ; the artery is distributed among the gills ; the vessels are again united into an aortic trunk for the system at large, and even for the lungs.—This is the Tadpole state. When the gills disappear, their arteries are obliterated, except two branches, which unite and form the aorta, and each of which gives a branch to the lung. They are then frogs, toads or salamanders. Some retain the gills, and continue tadpoles during life.

c. Of Birds, the organization is obviously intended for flight ; their configuration, proportion of parts, extent of respiratory organs augmenting their specific lightness, and communicating, as is believed, extraordinary muscular vigour, the arrangement of the individual parts of the skeleton, the disposition and proportion of the thoracic and ventral members, its tegumental appendages ; and, lastly, the arrangement of the organs of sensation are well adapted to this form of motion through an elastic fluid. The peculiarities of interior structure are too minute for enumeration in this place.

B. The Viviparous, or Mammiferous vertebrated animals, not only differ from the oviparous in mode of generation and degree of respiration, but are distinguished by more perfect animal functions, and intelligence less guided by instinct and more capable of perfection.

The peculiarities of structure recounted by M. Beclard are greatly too numerous to allow us to repeat them, and perhaps the objects themselves are at least generally known to our readers, and therefore scarcely require our minute attention. They consist chiefly, 1st, In the form and number of certain parts of the skeleton, which are connected with the nervous system or its parts, and with the organs of proper sensation ; 2d, In the arrangement and disposition of the organs of circulation and respiration ; and, 3d, In the mode of generation, which is essentially



viviparous. We are satisfied, that, when we mention these general characters, our readers will find little difficulty in filling up the details, which are readily derived from those objects with which anatomical readers are most familiar. They will find the sketch of our author a useful and convenient guide. The description of the peculiarities of the human subject, which is derived from Blumenbach and Lawrence, is short, but sufficiently distinctive.—

“Intelligence,” says our author, “which constitutes man, is characterised by consciousness, reason, free-will, by the sentiment of moral distinctions, and by that of a divine cause. Man is, of all the mammiferous creatures, that in whom the cerebral and cerebellic hemispheres are most developed, and most marked with convolutions. The volume of these hemispheres is very considerable, compared with the vertebral portion, the nerves, the organs of sensation and the muscles. His cerebral functions are very much developed, and widely differ from instinct. He is endowed with speech, and lives in society. He is the only creature that is truly two-handed and two-footed, and his whole person is constructed for the vertical position. The heart is directed obliquely on the diaphragm, and the disposition of the aorta is different from that of quadrupeds. The organs of digestion are suited to food of various kind, and principally vegetable. The penis is free without interior bone; the womb is a simple oval-cavity; the teats, two only, are placed before the breast.”

III. In the second section which now follows, M. Beclard enumerates more minutely the peculiarities of the structure of the human subject; and, after various remarks on the median line, symmetrical configuration, and the division of the human body into separate regions, recognizes and adopts the ancient method of dividing its component parts into solids and fluids. This and the chemistry on which it was founded, he thinks, has been too much neglected since the time of Haller and his school; and to do the subject justice, he allots it a more lengthened consideration than under the most favourable circumstances it can require. It is difficult, we think, to say in what light this scholastic, and at the best, useless division of animal substances ought to be viewed. It is certainly one of those happy examples of general proposition, which can never be charged with communicating a great degree of knowledge, or any very novel views.—That the animal solids, as they have been named, ought to be distinguished from the fluids, we readily admit; that the animal fluids are not unimportant, either in a state of health or of sickness, and ought not to be overlooked, we also admit; and that

the refined and delicate resources of analytical chemistry have furnished some information on their composition, and may in proper hands furnish a great deal more, we will not deny. But we do not know that a distinction, which is evidently founded on the physico-mathematical hypothesis, which formed at once the boast and the disgrace of the Boerhaavian school, ought to be retained in an age which professes to be guided by observation and experiment. It may indeed be said, that such a distinction cannot in the present day lead to any improper consequences, or bias the sound sense of modern physicians. But if it be even useless or harmless, what reason is there for retaining it, if others equally good can be obtained?

We could have wished that M. Beclard had rejected another of the ancient distinctions; which, if not closely connected with that to which we have now alluded, is at least more gratuitous, and equally useless. In his observations on the organs or animal solids, M. Beclard has laid hold of the notion of a common or elementary fibre; and has indeed admitted that it is extremely vague, and not yet intelligible. This was proper, and pleased us extremely. But he incontinently makes, by a short train of authorities, the inference that such elementary fibre really exists. First, says he, Haller admitted, in the composition of the organs, besides cellular tissue formed by union of fibres and plates, muscular fibre, and medullary substance. Then, says he, this division has been since sufficiently generally admitted, with slight modifications more or less happy. Thus Walther admits a *membranous* or *cellular tissue*, a *fibrous*, or *vascular*, and a *nervous*; Pfaff, a *vascular* or *fascicular*, and a *cellular*; others again, a *cellular*, a *vascular*, and a *massive* or *solid*—without cells and without vessels. M. Chaussier, he reminds us, added to the three component parts of Haller, a fourth, under the name of *albugineous*,—the basis of ligament; and it could not pass through the hands of M. Richerand without being augmented by the *epidermal* or *horny*, which thus forms a fifth. Of the twenty one tissues admitted by Bichat, continues M. Beclard, he regarded the cellular, vascular and nervous, as generators of the others; and to complete this chapter of hypothesis, M. Meyer of Bonn, in his *Histologie*, admits three elementary organs also;—1st, the cell, the vessel, or the gland; 2d, the irritable, cellular, or muscular fibre; 3d, the sensible fibre, or nerve.

But even with these modifications and changes, the division of Haller does not satisfy M. Beclard. We do not thus reach the last term of analysis, which it is possible to obtain in anatomy. By the aid of the microscope, these simple organs, and all



their modifications, and all their compounds, may be reduced to two anatomical elements ;—an animal substance areolar and permeable, and microscopic globules similar to those of the fluids. The first substance alone forms plates, and often fibres, which differ from each other in being longitudinal and filiform in the first case, and spread out or widened in the second. When united, they form cells (*areolæ*.) This first element, which by itself, under different modifications, constitutes the great part of the organs, when combined with the other, the particles or globules of which it collects and unites, forms the muscular and nervous fibre.

Now, on the whole of this we have merely to remark, that it is of no consequence to the question at issue, what one great speculatist thinks, or what another great speculatist thinks, on a subject on which our knowledge is yet in its infancy. It is not by stating what division Haller attempted of the ultimate elementary fibres, or in what manner his successors modified this division, that we can hope to acquire or communicate just and useful ideas of the organic elements of the human body ;—but by examining and treating the animal tissues in various modes, by recording the results with fidelity, and showing what these results indicate. We have ever regarded this division of Haller as the most unfortunate thing for general anatomy that could happen ; for, whatever might be the research, judgment, and originality of this eminent physiologist on other subjects, in this he certainly suffered himself to be misled by the hypothetical opinions of the ancient physicians ; and the great authority of his name has served as a pretext to perpetuate with subsequent writers, doctrines, the vagueness and fallacy of which they ought to have readily discovered. It was a gratuitous assumption, in the true spirit of mystical science ; it was a scholastic proposition formed without sufficient examination of the objects predicated ; it was an affirmative conclusion derived from imperfect or inaccurate observation, and without any regard to the rules of analytic induction ; yet with all these objectionable qualities, it was announced and repeated by teacher and pupil, with dogmatic infallibility and presumptuous confidence. We can conceive nothing more truly ridiculous than the gravity with which the divinities of medicine delivered their dogmatic aphorisms on the nature and kinds of the *animal solid*, the *simple solid*, and the *living solid*, as if such distinctions were perceived as readily as the colour of the skin, or the shape of the limbs. We trust the anatomists of the 19th century will not testify their admiration of these worthies by beginning at the wrong end of the science,

and committing the preposterous error of raising an edifice, ere they have collected materials for its foundation.

It is in truth obvious, that in matters of this description, no positive division ought to be attempted, while our knowledge of the nature of the individual organic substances is so uncertain and so scanty ; and every distinction formed in such circumstances is liable to be erroneous and therefore useless. With regard to the improvement which M. Beclard has himself attempted, after the general opinion above stated, it is surely unnecessary to make any further remark. Though not avowed, we believe it is nearly the same with that announced by D. H. Milne Edwards in his Thesis, on the authority of accurate microscopic observation. These observations are curious, and if confirmed by repetition, certainly merit the belief of anatomists and physiologists. In their present state, it is hardly requisite to say, that they are to be viewed as curiosities to be ascertained, and ought not yet to be admitted into an elementary work, as positive or established matters of fact. We are almost ashamed of saying so much against a scientific matter so trifling and unimportant to many ; but it is with some feeling of pain, that we find, after most of our ancient mystical notions of anatomy had been exploded, one of the most chimerical and useless revived by an anatomical writer of some eminence. The present state of anatomical research and of chemical analysis, evidently requires a simple enumeration of all those substances found in the animal body, which can be distinguished from each other by external qualities, physical characters, chemical properties, and more obvious structure—to say nothing of physiological properties, if these are found. An enumeration or arrangement of this kind is much more instructive than any attempt at generalization, however ingenious or elegant. The profound and intimate study of the individual kinds of organic matter, ought to precede every attempt at referring these substances to a few general heads, to which they are unnaturally, if not violently compelled to assimilate themselves.

We proceed to notice very shortly, that M. Beclard, after assigning their respective merits to Pinel in France, Carmichael Smith in England, and Bichat as the imitator of both ; and, adverting to the recent improvements of Chaussier, submits an arrangement of the *proximate tissues*, to use the language of chemistry, which he believes equally proper, whether the anatomical, chemical, physiological or pathological characters of the objects be regarded. 1st, The cellular tissue is the principal and general element of organization ; it exists in every organic substance, in every organ, and is the basis of their organization.—



Modified in consistence, form, or in the proportion of earthy matter contained in it, it forms other kinds of organs. Arranged in the form of shut membranous sacs, it constitutes the serous and synovial system. It forms the tegumental tissue comprehending skin, mucous membrane, the follicles of both, and the generating membranes of the hair, teeth, &c. It is the same, says our author, with the elastic tissue, that recently termed *tawny or yellow*, we presume, which is the basis of the vascular system, comprehending artery, vein, lymphatic, approaching however to the muscular tissue. The glandular system, resulting from the union of the tegumental and vascular, pertains to the same order. Another modification, comprehending parts of great tenacity and resistance, is found in ligament or the desmoid tissue. Lastly, M. Beclard refers to the cellular tissue, cartilage and bone. 2d, A second order of organs is formed essentially of muscular fibre; viz. muscles, either connected with bones, or with outer or inner teguments, or with the sensitive organs, or with the heart. 3d, The nerves, and the central masses of the nervous system, constitute a third and last order of organic substances.

This arrangement appears to us decidedly objectionable, and founded on most erroneous principles. We cannot, in this place, enter into very minute criticism of its merits; but, with the utmost deference to the author, we submit the following remarks. If we agree with the majority of physiological writers in referring serous and synovial membrane to the cellular or filamentous tissue, with what justice can skin be referred to the same head? On what principle of structure or composition can this be done? Leaving the question of its minute structure, which we regard as still undetermined, it consists essentially of gelatine, a peculiar proximate principle, which is not found, at least to the same extent, either in serous membrane or in cellular substance. Skin is also a substance of much greater tenacity, and infinitely more resisting, than either of the other two substances; and its organization, so far as it has been yet examined, is greatly more perfect. Again, the individual parts of the vascular system, so far as they have been made the subject of attentive research, are by no means like each other, and certainly not like cellular substance. The proper arterial tunic, or the middle arterial coat, as it is often named, is a peculiar organic substance, extremely unlike any other tissue. It is said, on the best authority, that of Berzelius, to contain no fibrine, and to consist chiefly of albuminous matter in a particular condition; but we regard its chemical analysis as still imperfect. Thirdly, The structure and composition of ligament is certainly

in every respect different from that of cellular substance. If it contain this last tissue, it is in minute quantity only, and in no proportion compared with the proper ligamentous structure by which it is distinguished. Its chief chemical constituent is a peculiar form of albuminous matter; gelatine exists in it in very small quantity only. Lastly,—To refer cartilage and bone to cellular substance, is the most useless and uninformative species of generalization we have met with, since we studied the general structure and chemical analysis of bone in the osteology of the first Monro. That learned anatomist, nearly a century ago, described this substance as composed of many *plates*, which were again made up of fibres or strings, the whole firmly joined by *claviculi* or nails; and stated, that, when exposed to strong fire in chemical vessels, they were resolved into *phlegm*, *spirit*, *volatile salts*, *fetid oil*, and a black *caput mortuum*. Such fanciful notions were more the effect of the imperfect state of knowledge, and especially of chemical knowledge, than of the judgment of the worthy osteographer; and we therefore treat them with that respectful delicacy, to which even the errors of a great mind are entitled. But to hear of an anatomist of the present day referring bone and cartilage to the head of cellular substance, is certainly a novelty for which we were not prepared. We have never regarded it established that bone and cartilage even are allied, or are modifications of the same organic substance; and some few observations and experiments which we have attempted are in complete variance with such conclusion. But it is certainly the most violent piece of generalization, with which the credulity of the student could be taxed, to consider both as mere modifications of cellular substance.

A chapter, consisting of eight subdivisions, on *Organism*, gives a view of that term similar to those of the German physiologists, from whom it is borrowed. The term may be regarded as an abstract or general denomination to express the idea communicated by the *assemblage and series of actions and processes which take place in living beings, especially animals*. In speaking of the properties of organic substances, he adds to the three varieties of irritable motion, or tonicity, vascular contractility and myotility (muscular motion,) that of *vital turgescence*, to which sundry phenomena have been referred by Hebenstreit; and among the varieties of sensation, admits the *coenaesthesia* or general sensation of Reil and Hubner. The former is evidently the same with what has been long remarked under the name of erection, in parts, the vascular structure of which is known to be so constructed as to admit of a temporary extraordinary distension. For the phenomena of the second, which have a real



existence, it is too obvious that we have long felt the want of a general designation ; and it is well that the term of Reil, or any other equally expressive and convenient, be adopted. One thing, however, we must notice particularly. The phenomena of common sensation do not depend on the presence of nervous filaments, as is erroneously imagined by many physiological speculatists ; for it can be recognised in many tissues in which no nerves can be shown to exist, and its intensity does not bear any relation or proportion to the abundance or scarcity of the nervous branches. A nerve itself, indeed, does not manifest a greater degree of this property than a ligament or a tendon which has no nerve ; and it is as distinct in bone in which nervous branches are scanty, as in muscle in which they are abundant. *Common sensation, in short*, is a property inherent in every animal tissue, and pertaining essentially to its structure.

On the subjects treated in the subsequent divisions of this section,—the development and differences of organization, in which the several divisions of the human race are enumerated and distinguished by their specific characters, from Blumenbach and Lawrence, the alterations of organization, which may be either original imperfections, or the result of disease, and on death and the lifeless body,—we must be content with a general reference to the work itself.

On the details of the subsequent parts of this book it is unnecessary to enter ; for it is quite out of our province to attempt, in these pages, an analytical account of an elementary work which the student must study for himself. For the accuracy and correctness of these details we can vouch with great confidence, and have almost nowhere seen any thing like want either of information, of research, or of useful and instructive description. The notices of morbid changes incident to the several tissues, are derived from the most authentic sources, both in the medical history of this country, and in that of the Continent, and are narrated in plain and intelligible language. On the whole, it may with truth be said, that the present volume contains a collection of information on the structure and diseases of the organic tissues, extremely useful to the student, and very convenient to the practitioner.

## MONTHLY SUMMARY

### OF PRACTICAL MEDICINE.

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#### I. ANATOMY AND PPYSIOLOGY.

DR. EDWARDS *on the Influence of Physical Agents upon Animal Bodies.*

A very curious question has received conclusive elucidation from the investigations of Dr. Edwards : we allude to the singular fact of certain animals, particularly toads, remaining alive for indefinite periods, although enclosed in solid bodies. Most of our readers are probably aware of the famous experiment of Herissant, who enclosed three toads in boxes sealed with plaster; two of which were found alive at the end of eighteen months. The account of this experiment is not very satisfactory in its details, as no mention is made either of the size or materials of the boxes employed ; and there is reason to believe that a certain portion of air was present in them. Dr. Edwards, in order to guard against these objections, took boxes about four inches square, and, having put some plaster in the bottom, he placed the toads in them, and, surrounding them on all sides with plaster, shut and secured the boxes. The circumstance to be ascertained was—whether these reptiles, deprived of air by the contact of a solid body, or by immersion in water, would survive longest ; and it is sufficient at present to remark, that they lived much longer in the plaster than in water. A fact sufficiently remarkable, but what appears more extraordinary still, is that they lived longer when enclosed in a solid body than in air. Four frogs were confined in a dry jug, and an equal number were placed in dry sand : the third day, all those confined in air were dead, except one, while all those enclosed in sand were alive, except one ; from which it would appear, not merely that these reptiles can live when surrounded by solid bodies, but that placing them in this situation is a means of prolonging their existence ; a conclusion which is in accordance with those well-authenticated narratives of animals of this class having been found in the centre of solid masses, where they must have been enclosed during periods concerning the duration of which it would be in vain for us to indulge in conjecture.

That the sand employed in the last-mentioned experiment



contained air is obvious, and that the plaster was pervious to air was proved by the following experiment:—An open tube was corked with wet plaster to the extent of an inch; after it was dried, more plaster was applied, to cover any imperceptible apertures; the tube was then filled with mercury, and inverted over a vessel of the same: the air entered through the plaster, and made the quicksilver sink in the tube. But as it might be said that, although some air passed through the plaster, yet enough to sustain life could not be supposed to find its way through so dense a body, toads and salamanders were enclosed as before, and the boxes buried in water and quicksilver: they now died as soon as when merely immersed without any covering. It would thus appear that the fact of these reptiles living in solid bodies is not an exception to the general law, which regards air as necessary to the support of animal life. The fact of their surviving longer in plaster or sand than in air, seems to depend upon the waste by evaporation being thus lessened; it having been found, by statical experiments, that, *ceteris paribus*, a frog confined in air became emaciated and shrivelled with much greater rapidity than when surrounded by solid materials; the rationale of which is too obvious to require explanation.

The influence of cutaneous respiration was further illustrated by preventing the action of the lungs. As the mouth of these animals is necessarily shut during respiration, to enable them to throw air into the lungs by a movement of deglutition, Dr. Edwards took advantage of this circumstance, by placing a piece of stick between the jaws, so as to prevent them from being closed, and retaining it in this situation by a particular apparatus. This contrivance impeded, but does not appear to have entirely arrested, the action of the lungs, and therefore the results can scarcely be regarded as satisfactory; nor the method, one proper to be adopted in repeating these experiments. A ligature was applied so as entirely to exclude the access of the air; the reptiles were placed on wet sand, and lived for a considerable time,—one of them for twenty days after complete strangulation, although, when similarly treated in water, they died in from one to three days; a result which is regarded as proving the beneficial influence of the air upon the skin. Yet another and a very important modification of this experiment consisted in the entire extirpation of the lungs, the peculiar construction of which in these animals renders it capable of being done without making an extensive wound; an incision of two or three lines in the flank permits of their extraction, while a ligature placed at their root prevents any effusion of blood. This operation was performed on three frogs, the external wounds being

closed by sutures : they seemed to suffer little, and were soon as lively as before ; two of them lived thirty-three days, and the other forty.

We have thought it proper to give these experiments a place in this compilation, not on account of their absolute novelty, but because they appear to us more precise than those of Spallanzani, or any previous experimentalist on this subject ; and to place the importance of the skin as an organ of respiration in a very clear light, so far as regards the animals experimented upon. The work contains many interesting doctrines, particularly concerning the action of temperature and different media upon animals : almost all of these, however, were published in detached Essays, which have appeared in the French periodicals at various times during the last five or six years, and consequently the most important of them have already been noticed in this Journal.—*Lond. Med. and Phys. Journal.*

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DR. TODD on the *Re-production of the Earth-worm.*

From the very interesting experiments of my ingenious friend, Professor San Giovanni, of Naples, I am authorised to conclude, that although the re-productions of the earth-worm present some specific differences, yet the general process is the same. I am entirely indebted to his liberality for the following account of it. When earth-worms are divided at the lower edge of their great ring, if they survive the injury, which they generally do, thrice in twenty times, the separate parts gradually diminish in circumference, the wounds cicatrize, and the cicatrix, which is of a bright red colour, is surrounded by a round projecting band (*bourettelet*.) In the anterior half, re-production goes on rapidly ; for in twenty-four days from the beginning of the experiment, four or six of its rings are already re-produced, in all about four or five lines in length. As soon as the re-production commences, the round projecting band ceases to be observed. The new production is transparent, of a clear reddish colour, and of the same size and diameter as the rest of the body. The anus is perfectly formed, and the parts of vessels, nerves, and alimentary canal, belonging to the new growth, can be observed, as well as the lateral filaments distributed by pairs to each of the new rings. The great ring, it is worthy of remark, entirely disappears during its re-production. The process continues to proceed in the same manner, though with less rapidity, being apparently much influenced by the season of the year. Two



hundred and thirteen days from the commencement of the experiment, the anterior halves have each re-produced 25 or 26 rings, the new growth becoming gradually redder, less transparent, and more perfectly organized. Their diameter is every where equal, as well in the new part as in the old; so that the new tail continues conical, instead of being flattened as in the original.

The process of re-production is much slower in the posterior halves. They preserve a healthy and well nourished appearance, their anterior extremity cicatrizes and tapers very much, becoming more so until fifty-five days from the beginning of the experiment, and the new growth be distinctly perceived, when only three or four new rings are observed at the anterior extremity, their termination, the seat of the head assuming a pointed conical form, approaching nearer that of the natural head. Two hundred and thirteen days from the beginning of the experiment, the posterior halves have each re-produced five or six rings, and the head, in appearance, (for if it does not appear that its real organization was determined by dissection) only differing from the natural one in being more obtuse and less tapered. Thus, from the division of these worms, Professor San Giovanni obtained six perfect ones, which he submitted to the inspection of the Royal Academy of Naples, in May, 1815.—*Anderson's Quarterly Journal.*

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## II. SURGERY AND MIDWIFERY.

### MR. HOULTON on *Local Disease of the Great Toe.*

The morbid affections to which the great toe is liable are mostly of a painful, and some of them of an alarming character, though they seem to depend upon its situation rather than upon any thing peculiar in its organization. If we consider it as the "ultima Thule" of the human microcosm, we shall not be surprised to find it in a particular manner subject to deviations from health, or that diseases which essentially belong to more extended stations should select this part on which to exhibit their more prominent symptoms.

But it has local diseases; and from the inconveniences they produce, they are worthy of the attention of the Profession, although their treatment has generally been committed to unscientific hands. That which I have chosen for the subject of this paper is one which has frequently been under my care, and which, in the first few years of my practice, was very trouble-

some and difficult to manage—I allude to that affection which is supposed to arise from the nail growing on each side into the substance of the toe, producing much irritation, pain, general enlargement of the part, and fungous growth, so as nearly to envelope the nail, and attended, in some instances, by considerable discharge. I have been consulted in cases of twelve or more months' standing, where lameness has been so great as to prevent the individuals from pursuing their usual avocations.

The common practice has been to reduce the exuberant fungus by the use of caustic, and to cut and tear away longitudinal portions of the nail on each side, which is not always to be effected with facility,—is, moreover, a very painful operation, requiring frequent repetition, and is not uniformly successful; so that some irritable and timid patients will rather bear the ills they have than submit to such barbarous torture. Disgusted with this mode of treatment, I resolved to try the effect of pressure, and have been so happy as to succeed to the satisfaction of myself and patients.

In these cases the *curandi consilia* have been to repress the morbid growth of the part, and to bring the nail into its natural shape, defending, in the mean time, the irritable part from the lateral pressure of the nail. These objects may be effected by scraping the whole length of the centre of the nail until it is very thin, introducing a triangular, prism-shaped piece of fine cork between the nail and toe on each side, extending from the commencement of the nail to the end of the toe; applying a small flat piece of cork one-third the width of the nail, and equal to it in length, upon the extent of the scraped part; securing these *in situ* by a small strip of plaster; and rolling up the toe neatly and firmly with a calico bandage. These should be removed every third day. In some cases mild escharotics will be required, and slight variations to meet particular cases; but the general plan of scraping, tenting, and bandaging, will be found to possess an efficacy equal to any reasonable expectation; and those who have much to do with the painful affection here alluded to, will doubtless, should not a similar plan, or one equally happy, have been tried, adopt a measure that will spare their feelings, their time, and their reputation.—*Lond. Med. Rep.*

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MR. ROBERTSON'S *Letter to Mr. Syme on Amputation.*

DEAR SIR,—An opportunity having been offered in this hospital of putting into execution the mode of amputation recom-



mended by you in the LXXVIIIth Number of the Edinburgh Medical and Surgical Journal, I determined on adopting it. My patient, a lad of 18, labouring under an enlargement of the bones of the knee-joint, which had resisted repeated local bleeding by leeches and cupping, issues, blisters, embrocations and moxa, together with several courses of alterative medicine, submitted to the operation on the 2d inst. My assistant, Mr. Bayley, having undertaken to command the femoral artery by pressure with his thumb, I followed your directions in every particular, employing neither tourniquet, tenaculum, nor retractors; and, in comparison with the former mode of amputation, this was the work of a moment, with a great diminution of pain, little or no hemorrhage, and with a surface that enabled every vessel to be seen on the instant. The stump has healed by the *first intention*, with the exception of the opening made by the ligatures, and a spot on the lower surface.

I had anticipated, from the very angular direction of the incisions, that the limb would have been too pointed, but it proves a round, full, compact stump; and, in the opinion of the naval and military surgeons, as well as that of my private friends who have attended the case, is very superior to those which result from the circular incisions. A pupil of M. Dupuytren saw it on the eighth day, and was much struck with the remarkable contrast between its uniting condition, and the charpee-covered stumps daily seen in the Parisian hospitals.

Your method has my decided and unqualified approbation, and I hope you may have the gratification of seeing it speedily adopted throughout the surgical world. The non-employment of the tourniquet is the point on which opinion will be the most difficult to eradicate, it having hitherto been considered as only to be laid aside from stern necessity. Some of my friends recommended that in this instance it should be left loose on the limb, and others that it should be kept in hand in case of being wanted; but I venture to assert, that neither those, nor any who may hereafter witness the small amount of blood lost, will hesitate one moment as to its rejection.

My colleague in hospital duty, Mr. Cullen, suggested the employment of the tailed bandage (with centre piece sufficiently long to supersede the cross pieces usually put over the face of a stump) instead of the circular roller. I found it very advantageous, enabling my assistant to remove the dressings without raising the stump from the pillow, and to apply pressure in a more uniform and easy manner.

A convict on whom I had amputated some time ago, stole unnoticed into the Ward, and witnessed this operation. He was

so struck with the rapidity of the process, and the diminution of pain to the sufferer, that he stopped me on deck to express his surprise at the *unnecessary* pain to which he had been subjected! I quieted his vexation by telling him, that this mode was not then known.—*Edin. Med. and Surg. Journal.*

We take this opportunity to state, that the flap operation as recommended by Mr. Syme, has been twice performed by Dr. Cogswell, of Hartford, with the most gratifying success. In both cases amputation of the thigh was performed without a tourniquet, and the loss of blood, and the sufferings of the patients, were diminished beyond our most ardent expectations. We hazard nothing in saying that those who were witnesses to the facility with which these limbs were amputated, will never resort to former methods of performing the operation.—ED.

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MR. CROWFOOT'S Case of Hemorrhage into the Cavity of the Uterus.

About noon, on the 22d of last February, the Honourable Mrs. M., who had just completed the seventh month of her pregnancy, was suddenly seized with extreme faintness whilst quietly sitting in her breakfast room. The faintness soon increased to syncope, from which she was with some difficulty recovered, and which recurred upon the slightest approach to an upright position.

On the first alarm, a respectable practitioner in her immediate neighbourhood was sent for, who prescribed some cordials, and left her somewhat better. The most deathlike faintness, however, soon returned, when the same gentleman was again summoned, and a messenger was despatched for me. Upon my arrival, at about half past six in the evening, I found the patient with an extremely feeble pulse, a very pallid countenance, and an inability to rise from a recumbent posture without fainting. There had been no uterine discharge of any kind, nor any one apparent circumstance to account for this state of exhaustion. The movements of the child had been very strong and distinct early in the morning, but they had not been felt since the faintness came on. The patient complained of a most distressing sense of distension at the lower part of the body, but she had no pains resembling those of labour. In this perplexing state she continued, with little alteration, till about ten o'clock at night, when she expressed a belief that her labour was approaching. Soon afterwards a sudden and copious discharge of a slightly



coloured fluid took place from the uterus, which she, as well as those about her, considered to be the waters of the amnion. On examination at this time, *per vaginam*, the *os uteri* was found scarcely at all dilated. Externally, the child could be very distinctly felt under the parietes of the abdomen on the right side, and, on the left, a tumour of equal bulk, but of a soft and compressible character. The patient's sense of distension was much relieved by the discharge of the fluid. During the night there were occasional slight pains, attended with more or less of hemorrhage, which latter, by six o'clock in the morning, had increased so much as to render it necessary to hasten the delivery of the patient. There had been so little uterine action, that, even at this time, it was with some difficulty I was enabled to ascertain that the membranes were still entire ;—these I immediately ruptured, and found the head of the child presenting.—The hemorrhage ceased on the discharge of the waters, expulsive pains very soon took place, and, at about nine o'clock, a recently dead child was born, and was immediately followed by a very large quantity of coagulated blood. The placenta was found loose in the uterus, and was at once removed. The uterus contracted readily, and there was little subsequent hemorrhage. The patient, naturally florid, long retained her pallid and almost bloodless appearance, but a good constitution enabled her shortly to recover from the effects of so severe a loss.

The sudden and alarming faintness, which occurred in this case, appears to have been occasioned by a formidable hemorrhage into the cavity of the uterus consequent on the separation, from some unknown cause, of a considerable portion of the placenta ; whilst the closed state of the *os uteri*, by preventing the escape of the blood, restrained the hemorrhage, and prevented its going on to a fatal extent. After a time, the over-distended organ slightly contracted on its contents, and expelled, what I imagine to have been, the serous portion of the extravasated blood, whilst the crassamentum formed the elastic tumour on the left side of the abdomen. After the *os uteri* had begun to dilate, a gradually increasing hemorrhage took place, and rendered it necessary to rupture the membranes, and evacuate the waters, for the purpose of inviting a more efficient action in the uterus, which happily soon followed, and terminated a very anxious and perplexing case, in which a nearly fatal hemorrhage had taken place, without having been indicated by any external discharge.

Since the publication of Dr. Gooch's paper, (12th vol. of the *Medico-Chirurgical Transactions*,) on the Hemorrhage which sometimes follows the Expulsion of the Placenta and the Con-

traction of the Uterus, I have had an opportunity, in three cases, of witnessing the good effects of the preventive treatment which he recommends.

Mrs. G., in three previous labours, had suffered from a frightful hemorrhage, which followed the expulsion of the placenta, after an interval, varying in the different labours, of from five to twenty minutes, notwithstanding the uterus had actively contracted. This patient having been again pregnant, I determined to try strict antiphlogistic treatment for five or six weeks prior to her confinement. The consequence was, that she altogether escaped the hemorrhage.

Mrs. A., a lady of sanguine temperament, but delicate constitution, in her two first labours had rather more than the usual discharge after the removal of the placenta. In her third labour, the placenta was expelled as usual, the uterus actively contracted, and no hemorrhage followed for at least twenty minutes, when a most appalling one burst forth, and was with difficulty restrained by the most prompt and continued treatment. In her fourth pregnancy, the antiphlogistic treatment was pursued as in the former case, and with the same satisfactory result.

In another patient, Mrs. L., similar hemorrhages had occurred in two previous labours; in a third pregnancy, the antiphlogistic treatment prevented this inconvenience in the following labour.

In none of these cases did the hemorrhage immediately follow the expulsion of the placenta; an interval of from five to twenty minutes intervened; and I therefore infer, that a degree of relaxation of the uterus preceded the hemorrhage, and was as essential as the existence of the phlogistic diathesis. We find that the only remedies upon which we can depend in these cases, are such as have a tendency to produce firmer contraction of the organ;—the sudden application of cold to the abdomen, steady pressure externally on the uterus, and the introduction of the hand into its cavity.\* Dr. Gooch found that Le Roux's remedy could not be relied on; and the case which I detailed first, in which alarming hemorrhage took place, into an uterus distended by a seven months' fœtus and its appendages, would indispose one to trust to the plugging the vagina as a means of restraining a bleeding into a dilatable organ.—*Edin. Med. and Surg. Journal.*

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\* In these cases, Ergot constitutes an invaluable addition to our therapeutical agents, which the British practitioners seem generally to have overlooked.—Ed.



## III. PATHOLOGY AND THERAPEUTICS.

## DR. FRANK'S Cases of Chronic Cephalalgia.

A number of physical and moral causes, says Dr. Frank, may produce chronic cephalalgia. Although many of these are readily apparent, yet cases occur in which they are by no means manifest, or are of such a nature as not readily to suggest themselves to the mind of the Practitioner. In many of such cases, therefore, the treatment cannot proceed upon pathological principles,—the physician must then have recourse to a rational empiricism. Without being new, the following cases may be recollected with advantage.

*Case 1st.*—When at Newstadt, near Vienna, in 1815, I was informed that a woman who had been distressed with severe cephalalgia, and obliged to keep her bed during seven years, in consequence of the violence of the pain, was cured, as if by enchanting, after the expulsion from the nose of about fifty worms, accompanied with mucus. Wishing to ascertain the truth of this statement, I visited the woman, when she confirmed the fact, and added, that she had consulted, previous to this occurrence, several physicians, and employed without benefit a great variety of remedies. Despairing of relief, anxious to hazard every means, and observing that her mother was in the habit of giving her brothers and sisters a powder consisting of the semen-contra, (*Artemisia santonica*, worm seed,) valerian, and assafœtida, as a vermifuge, she formed the resolution of taking it in the form of snuff. This powder occasioned much sneezing, and the evacuation of much mucus, followed by several living worms. She continued her remedy, and in the space of about a month she discharged from the nose the number of worms already mentioned. She was completely cured of her complaints, returned to her occupations, and now, four years after the occurrence, remains well. The noise which this circumstance occasioned in the village, induced all who have since been affected with head-ache, to resort to this powder for relief, and many have actually derived advantage from the use of it.\*

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\* A case of frontal cephalalgia, depending upon the presence of a worm in the frontal sinus, came under our observation a few years since. The patient was a young female much infected with worms. The pain disappeared immediately after the worm, which seemed to us to be the *Oxyuris vermicularis*, came away. Its discharge was attended, both before and short time afterwards, with a flow of Mucus. The presence of the larvæ of insects in this situation, is by no means an uncommon occurrence, and generally arises from their ova being inhaled whilst smelling too nearly to flowers. This case, however, was evidently not one of that description.

*Case 2d.*—In 1818, when visiting the Hospital of Incurables, of Yps, in Upper Austria, the Physician of that Institution shewed me a female who had been tormented for several years by violent head-ache, occupying chiefly the forehead and vertex. She had discharged a number of worms from the nose, having the form of small lumbrici, or larvæ of considerable size. Several of these worms were preserved in spirits, and sent to Bremser, at Vienna; but this celebrated helminthologist could not be precise respecting the species, as the too-concentrated spirit which had been employed for the purpose of preserving them had altered their structure. The patient had been treated by a solution of the oxymuriate of mercury and valerian. She assured me that each time she discharged these worms, her head-ache was relieved for a time.

*Case 3d.*—A female, forty-six years of age, came to consult me at Parma, for severe cephalalgia, which had continued four years. The pain occupied the whole head, and seemed to be seated in the pericranium, (rheumatic cephalalgia.) She had been treated by several physicians, without having derived benefit. This patient had the appearance of health, and the natural functions presented no disturbance. I was embarrassed as to what treatment I should adopt; believing the disorder, however, to be of a rheumatic nature, I prescribed a powder consisting of two grains of the submuriate of mercury, and a grain of the yellow hydro-sulphate of antimony, (sulphuretted hydro-sulphate of antimony,) with a little sugar, to be taken twice daily. A year afterwards I saw this patient, who informed me that she had been completely cured of her head-ache after having used this powder for a month.

*Case 4th.*—A goldsmith, at Verona, in 1822, of a good constitution, aged forty-four, consulted me on account of violent cephalalgia, obliging him sometimes to keep his bed, and producing vomiting. I supposed that the disease was owing to the mercurial and arsenical vapours, and therefore decided on prescribing the same powder that I had administered to the subject of the third case, with the addition of the infusion of the *Artemisia virescens* every morning. Passing through Verona in 1823, this goldsmith called on me, and informed me that he had experienced no cephalalgia during the preceding months. He stated that a few days after he had commenced the use of his medicines, he had passed by stool a great number of large lumbrici. It may be remarked, that the *Artemisia virescens* possesses greater anthelmintic virtues than any other bitter substance.

*Case 5th.*—A lady, aged forty-five, of a delicate habit and pale, complained of violent cephalalgia, in paroxysms of three



or four hours' duration. Conceiving that it might originate from the state of the abdominal viscera, I administered an emetic and gentle purgatives, but without advantage having been derived from them. Valerian, cinchona, &c., were also prescribed, with the same result. The patient having remarked, that the presence of cold water in her mouth gave relief, I was induced to examine her teeth: the molares were affected with caries. The affected teeth were removed, and the cephalalgia disappeared without farther treatment.—*London Medical Repository*.

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PROFESSOR HUFELAND on the *Artemisia Vulgaris* in *Epilepsy*.

Dr. Burdach, of Wiebal, near Sorau, having been in the habit of employing the root of this plant in epilepsy, Professor Hufeland was induced to try its effects.

Dr. Burdach recommends the root to be gathered about the middle of October, to be dried in the shade without washing, and not to be powdered until shortly before its exhibition. It should be taken in powder, within half an hour of the expected accession of the paroxysm, when the paroxysm can be foreseen, in the dose of a coffee-spoonful (from 50 to 70 grains) in a little warm beer: the patient ought to be placed in bed, well covered, and to drink warm beer. Copious perspiration is the result, which having subsided, the patient may leave his bed.

Dr. Burdach asserts that the first dose generally procures some relief, and sometimes performs a complete cure. He advises the dose of this medicine to be repeated on alternate days.

Professor Hufeland prescribed this remedy in ten cases of epilepsy in the "Polyclinical Institution of Berlin." Of these, three were perfectly cured, three obtained relief, the paroxysms becoming less frequent, and much less severe; and four derived no advantage from its use. These experiments deserve to be repeated in this country; for, according to the observations of Hufeland and Burdach, this substance seems to possess more efficacy in the disease than *a priori* reasoning would lead us to expect from any single remedy, especially when we connect the pathology of the disorder with the means of remedying it.

We subjoin an abstract of some of the cases published by Professor Hufeland and Dr. Burdach, as we conceive that the result entitles this substance to the favourable notice of Practitioners. The experience of Hufeland being in its favour, is no small recommendation:—

Case 1st.—A female, aged forty-one, who had been hysterical, became subject to attacks of epilepsy. These attacks seem to have been consequent on chagrin, irregular menstruation, and a sedentary life. She was received into the hospital under the care of Hufeland, and during a month's residence in the institution, she experienced six epileptic fits. As each of the paroxysms was ushered in with general uneasiness and agitation, the powdered root of the *Artemisia* was exhibited on the appearance of these symptoms. The first dose was taken at 11 o'clock at night, at the moment when the usual forerunners of the fit declared its accession. A very abundant perspiration supervened, which continued till morning. The patient had no sleep; she changed her linen and felt much relieved. On the following day, however, at two of the afternoon, she was suddenly seized with a paroxysm, which an hour afterwards was succeeded by a second equally violent as the former; she then fell into a profound sleep, which continued until the morning following. Seventy-two hours after the exhibition of the first dose, a second was given in warm beer. A general, a very abundant, and foetid perspiration speedily supervened; and in the morning she had a copious discharge of yellowish urine, which did not deposit any sediment. She felt greatly relieved. She left the hospital in the following month; and at the end of two years M. Hufeland ascertained that she had since enjoyed perfect health, and had not had any attack of epilepsy.

Case 2d.—A girl, seventeen years of age, an epileptic from her fifth year, in consequence of a blow on the head, had a paroxysm daily at the same hour. One dose of the *Artemisia vulgaris*, which was followed by perspiration, cured the disease.

Case 3d.—A girl, eighteen years of age, epileptic from the age of two years, in whom the paroxysms had been increasing in frequency and severity since their first appearance, until she had as many as twelve attacks in the day, took the *Artemisia* in the manner described above. After the third dose, the paroxysms were reduced to two in the day, and these were of short duration. No farther report was given of this case.

Case 4th.—A man twenty-nine years of age, was subject to a periodical epilepsy during four years. The disease appeared after a fall into the water when he was drunk. Two doses of the *Artemisia* completely removed the disorder.

Case 5th.—A man, thirty-six years of age, and rather imbecile in his intellects, was weekly subject to two or three paroxysms of epilepsy, since his infancy. Three doses of the *Artemisia* proved sufficient to diminish the number of paroxysms to one in a month. A large dose of this substance taken by the patient



himself each month, entirely prevented the return of the paroxysms.

Case 6th.—A girl, sixteen years of age, was seized with epilepsy at the age of puberty, without any evident cause. She generally had two paroxysms in the forty-eight hours. One dose only of the *Artemisia* entirely removed the disease.—*Lond. Med. Repository*.

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MR. CREIGHTON on *Tartar-Emetic Ointment in Epilepsy*.

Many of the children admitted on the establishment of the Foundling Hospital in Dublin, having been affected with epilepsy, the attention of the medical attendants was particularly directed to their relief: and, upon reading the account which Dr. Jenner gives of his success in curing several analogous complaints, by means of the tartar-emetic ointment, we were induced to make a trial of that remedy. For this purpose some of the worst cases were chosen: two of them rendered perfect idiots by the frequent recurrence of the disease, and others with such aberration of mind, and weakness of intellect, as to be but few degrees removed from the same degraded state. Though we have it not in our power to assert that a complete cure has been effected in any case, yet we have the satisfaction to state that the fits are now, in each patient, comparatively of rare occurrence, and are of so mild a character, as not to interfere with the health or strength of the individual. Indeed, these hitherto helpless objects are now capable of applying themselves to various useful employments, and are no longer a burthen to the Institution.

Each patient was allowed to remain a certain time in the Infirmary before the use of the ointment was commenced, both to enable us to ascertain the time of recurrence and duration of each fit, and also to submit them to an antiphlogistic regimen. This had no influence whatever on the disease itself, and was suggested to us merely from the plethoric habit of body which appeared in all of them, on their first coming into the Infirmary. The ointment made use of was in the same proportion as that used by Dr. Jenner in his cases, with some trifling variation.

The eruption produced by the friction of tartar-emetic ointment varied very much, as to its first appearance, in the different cases in which it was tried: in some it appeared in twenty-four hours, in others not for three or four days. The imperfectly-formed pustules, in some instances, were small, and at a distance

from each other ; in others, large and numerous ; and, in two or three instances, they degenerated into painful, irritable blotches, which gave the patients some trouble for a day or two, chiefly arising from the pressure or rubbing of the clothes against them. On this occurring, the ointment was immediately discontinued ; but, with this exception, although we have used it extensively in various complaints, it has not been followed by any injurious effects, or been the occasion of tumors or sores difficult to heal.

The blotches sometimes produced by the ointment are rather painful for a day or two, when touched or rubbed. In a short time they are covered with several dry crusts, elevated above the surface of the cuticle, and lying one over the other. These have been called warty, cartilaginous elevations ; and the successive layers of the crusts have been compared to the coats of an onion. They, however, very soon come off, leaving the parts underneath perfectly sound : in fact, if not interfered with, they will always heal of themselves. The simplest dressings are the best for them, while in the inflamed state ; and the chief thing to be attended to, is to preserve them from friction. It is to be observed, that the eruption is not confined to the spot on which the ointment is rubbed, it most frequently appears in very remote parts ; thus proving that its action is in some degree on the constitution.

CASE I.—July the 11th, 1822. Catherine Hunt, admitted with epileptic fits, aged twenty-seven, was completely idiotic, and incapable of giving any information respecting her situation. Her nurse said that she had been regularly afflicted three or four times a day, in the most violent manner. She is very large and strong, but has never menstruated : she has not had epilepsy from infancy.

It appears that, during childhood, she was of a remarkably dull intellect ; and, when arrived at a certain age, so viciously inclined, that it required constant watching and control to keep her within the bounds of propriety. She was apprenticed out of the Institution at the age of fourteen, but was in a short time sent back by her master, in consequence of her being attacked with epilepsy. From that time to the present, being a period of thirteen years, she has had the fits violently and constantly.

July 12.—Sixteen ounces of blood were ordered to be taken from her, and her bowels to be kept regular.

15th.—Frequent fits. The tartar-emetic ointment was now rubbed on her arms.

22d.—No recurrence of fits, but an appearance of fulness about the head. She was bled to the extent of twelve ounces,



and the ointment was directed to be rubbed each night on different parts of her body.

26th.—No fits ; but the ointment was discontinued, as the parts rubbed, particularly the back, between the shoulders, presented large inflamed blotches.

27th.—The back not so sore ; the blotches covered with dry crusts. Simple dressings ordered.

29th.—The back nearly healed. Has been free from fits.

August 1st.—The ointment was now directed to be rubbed on the thighs. No fit.

13th.—Ointment continued. No fit.

14th.—Appears dull and heavy. Twelve ounces of blood directed to be taken.

21st.—Ointment discontinued, in consequence of great soreness. One slight fit.

September 12th.—Up to this period no fit. On the morning of the 13th, she had a fit of short duration. The ointment to be again used.

20th.—The ointment discontinued.

21st.—One short fit, the first for the last eight days.

23d, 25th, 28th, 30th.—She had one slight fit each day. On the 5th October, she had two fits, but by no means severe. The ointment resumed.

15th.—No fit since the 5th. But she has again become heavy and stupid. Ordered to be bled to the extent of twelve ounces.

On the 18th, one short fit. On the 24th, she was again bled.

28th.—Two severe fits. It is now twenty-eight days since she had any repeated attack. We are inclined to think that they are influenced by some effort to menstruate. She is placed for some hours daily in a hip-bath. Arms again rubbed.

30th.—One fit while in bed this morning.

She has now become much more rational. She is lively and animated, and anxious to be employed. At her own desire, she works daily in the laundry, and cheerfully discharges any duty allotted to her. She is clean in her person, and her appearance and habits have undergone a complete reformation.

Up to the 10th of March, 1823, when she returned to the country, she has had occasional recurrences of the epileptic attacks, once in three weeks or once a month, but of such short duration, as not to interfere with or prevent her following her daily occupations. In July last, we heard from the person with whom she is now living, that she had the fits at times, but that she did not mind them, and had become an industrious and hard-working servant.

CASE II.—John West, aged seventeen, has had epileptic fits

from infancy, occurring with great violence six or eight times in a fortnight. He appears nearly idiotic ; his hearing is impaired, and his intellect dull ; his limbs are weak, and he walks with difficulty. As it would be unnecessary to detail the treatment in each of these cases, it being nearly the same in all, we shall only give the general appearance of the patients on their admission, and their present state of health.

This patient used the ointment, with occasional intermissions, till November, 1822. He has perfectly recovered the use of his limbs. He attended daily in the school, and is now so far educated, that he reads and spells well. He had a fit once a month, or once in six weeks. He returned to the country in March, 1823 ; and is now, we understand, although subject to occasional slight fits, a strong and healthy boy.

CASE III.—Michael Franklin, aged nineteen, has been subject to epileptic attacks as long as he can remember. They come on three or four times in a month, leaving him in a state of stupor for several days afterwards. His intellect is not impaired, but he seems incapable of making any exertion. He used the ointment during four months, with occasional intermissions. He is now so far relieved as to be employed in the garden of the establishment. He has a fit once a month ; but it lasts only a short time, and he immediately recovers from its effects.

CASE IV.—William Ord, aged nineteen, says that he has epileptic attacks once or twice in a fortnight ; that they continue a long time ; and that, before they commence, he generally feels a pain at each side of his head, immediately under the parietal bones. He appears healthy and strong in other respects, and is in full possession of his intellectual faculties. On the day of his admission he had a severe fit, which lasted upwards of twenty minutes, and was succeeded by the loss of strength and memory, which continued for some time afterwards. He commenced using the ointment, and continued under treatment for two months. He was apprenticed as a servant in February, 1823, and had not a fit for two months before he left the Institution.

CASE V.—Mary Lynch, aged fourteen, has had epilepsy for several years. The fits come on generally once a fortnight, and are repeated, with little intermission, for the space of one or two days, being always preceded by a pain in the head a day or two before the accession, and followed by great weakness. On her admission, she was dull and stupid, the fits being very violent and frequent. She has now become lively and intelligent : the fits do not occur oftener than once in two months ; and on one



occasion she has had not a fit for three months. She is at present employed as a servant in the establishment.

CASE VI.—Henry Woodgate, aged twelve, was almost in a lethargic state on his admission. He used to sit for hours in the same posture, and was roused from it with difficulty. He had epileptic fits three or four times in a day; the intellect was obscured; and he appeared to be fast approaching to a state of idiotcy. Though the disease resisted for a long time this plan of treatment, yet its progress was at length so far arrested, that he became capable of instruction: he attends in the school, and his teachers say he is by no means dull or stupid. The fits come on once or twice a fortnight, and they never recur on the same day.

Besides the above, there are several other cases at present under treatment, and which are progressively improving.

The tartar-emetic ointment has been used at the Foundling Hospital in every case of whooping-cough, during the last year, with evident good effect: the paroxysms were diminished not only in violence and frequency, but the progress of the disease so much shortened, that in no instance did it continue more than three weeks. The application of the ointment in these cases was along the course of the spine.—*Lond. Med. and Phys. Jour.*

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M. LOUIS on *Perforation of the Cavity of the Lungs*.

Within the last few years, Professor Laennec has drawn the attention of practitioners to a very serious accident, which is sometimes witnessed in the course of phthisis pulmonalis, and considerably accelerates its fatal termination. This accident consists in the perforation of the parenchyma of the lungs, owing to the breaking down of a tubercle, and the discharge of its contents into the cavity of the pleura. There are two varieties of this occurrence: sometimes the tubercular excavation communicates with the bronchi, at others not; but in both cases the period of perforation is frequently indicated by very severe symptoms which are sufficient, when well marked, to establish its diagnosis, or at least to render it very probable. These symptoms have not hitherto been published, and it is for the purpose of filling up the hiatus, that M. Louis has published the following reflections on some cases under treatment in La Charite, the particulars of which are detailed by him in the Journal before us.

At a more or less advanced period of the chief disease, says

the author, the patient *suddenly* feels on one side of the chest a violent pain, generally accompanied with extreme dyspnœa and inexpressible anxiety. These symptoms persist to the same degree, or with some remissions, until death, which has usually occurred from twenty-four to thirty-eight days after their first appearance; and, on dissection, a greater or less effusion of air, pus, or bloody serum, has been found in the side of the chest where the pain appeared, with a perforation of the corresponding lung, owing to the breaking down of a tubercle which had discharged itself into the cavity of the pleura, and, in the majority of cases, established a communication between it and the bronchi.

The connexion which exists between the symptoms and state of the lungs after death is so striking, that it is only necessary to give an exposition of facts, to shew their mutual dependance. The pain answers to the discharge of the broken down tubercle into the pleura, and is caused by it; whilst the sense of suffocation and anxiety are the effect of the not less rapid effusion of a certain quantity of air, and subsequently, sooner or later, of a fluid of a varied nature: hence it follows, that whenever, in a patient affected with phthisis pulmonalis, a violent pain manifests itself in one side of the chest, and this pain is joined with much sense of suffocation and anxiety, with every symptom of active pleurisy, it may be devined that there is a perforation of the parenchyma of one of the lungs; at least, by these symptoms M. Chomel and myself recognized the disease in several cases.

These symptoms are indeed so rational, that they might be determined *a priori*; there is so much similarity between the circumstances which accompany perforation of the small intestine, and that of the lungs, that we might arrive at the same result by way of analogy. In fact, in both cases, there is, at the moment of perforation, a more or less considerable effusion of an irritating fluid into the cavity of a serous membrane; and as a sudden pain, with every symptom of an intensely acute phlegmasia, manifests itself in the one case, it ought necessarily to do so in the other. Therefore, if this pain, suddenly felt in some part of the abdomen, and accompanied with symptoms of intense peritonitis, be sufficient to indicate perforation of the intestine, we should be induced to believe that a pain equally sudden and intense in one side of the chest, joined with an extreme sense of suffocation and symptoms of pleurisy, would also be sufficient to indicate perforation of the lungs, especially in those labouring under phthisis pulmonalis.

The diagnosis, however, acquires a higher degree of certainty from the comparative result of percussion and auscultation;



for if, at the moment when the pain and other symptoms which accompany it manifest themselves, the pained side be struck, a very clear sound is obtained, clearer than that of the opposite side; whilst the ear applied over the parts where the percussion is so sonorous, does not hear the sound of respiration. Now this double phenomenon indicates, as Mr. Laennec has shown, the presence of a certain quantity of air between the pleura costalis and the lungs; and as pneumo-thorax is one of the immediate effects of perforation of the parenchyma of the lungs, we ought necessarily to think that it is the result of it here. But, considered separately and independently of the symptoms we have mentioned, pneumo-thorax would be of no avail in the search after the cause to which it ought to be referred, as it may present itself under various circumstances. A little sooner or later, a certain quantity of pus or serum is added to the aeriform fluid; and if the ear be then again applied to the chest, in some cases the *tintement metallique*\* is heard.— This circumstance occurs, as is well known, when, along with the double effusion of air and liquid into the pleura, the tubercular cavity communicates with the bronchi. In this case, and in this case only, auscultation, by detecting the *tintement metallique*, and percussion, by confirming the presence of a certain quantity of air in the cavity of the chest, indicate in a positive manner the perforation of which we are treating. But, as has been already remarked, this re-union of circumstances is not always met with: it may happen, that the tubercle which has opened into the pleura, does not communicate with the bronchi, and then the *tintement metallique* is not heard. The same thing happens where, although the communication exists, the effusion of air is not yet accompanied with that of a liquid, or when the latter is in a very small quantity; so that in a number of cases, perforation of the parenchyma of the lung exists, without auscultation or percussion announcing it, and when it can only be detected by means of the symptoms above described.

With respect to the *tintement metallique*, it may be observed, that the quantity of liquid necessary for its production in the circumstances indicated, is not required to be very considerable,

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\* The *tintement metallique* is a particular sound heard through the stethoscope when applied to the chest, and which, according to Laennec, distinctly resembles that rendered when metal, glass, or porcelain, is gently struck with a pin, or when a grain of sand is suffered to fall upon them. The *tintement metallique* is heard on causing the patient to speak or breathe; but it is only when he coughs that it becomes perfectly distinct. It is considered to be the pathognomonic sign of a communication between the bronchi and pleura.

as I have heard it very frequently without being able to obtain a dull sound in any point whatever of the side of the chest where it occurred. Neither has a very large quantity of liquid prevented me from detecting its presence.

The four facts which I have related, are the only ones in which I have had an opportunity of observing perforation of the parenchyma of the lung in phthisis pulmonalis, and, in all the symptoms which appertain to this accident have been well marked. But it is not always so, and in the cases of the same lesion related by M. Laennec in his important work on auscultation, the symptoms in question do not appear to have existed. In cases of this nature, there is nothing to render us certain of the existence of an accident which does not manifest itself by any particular symptom; and if we detect it, it is in some measure by chance, by aid of auscultation and percussion, and only when there is a communication with the bronchi, as there is then the *tintement métallique*.

Percussion and auscultation would also be the only means of assuring ourselves of the existence of perforation, if the symptoms which depend upon it were but little marked, as they would indicate the existence of pneumo-thorax, which, as we have seen, is the necessary consequence of perforation of the parenchyma of the lung, and as this species of pneumo-thorax seems by much the most frequent.

The pain was various in the different patients: acute in the three first; much less so in the fourth, without, however, losing its relative importance in the diagnosis, either as regarded its sudden appearance, the sense of suffocation with which it was accompanied and followed, or still more the particular sensation joined with it. At the moment, and even a little before the manifestation of the pain, the patient had experienced a sensation which he compared to wind circulating in the left cavity of the chest—a sensation which continued for a certain time, and was probably really occasioned by the passage of the air from the lungs into the corresponding cavity of the thorax. Something analogous is observed in certain cases of perforation of the intestine, viz. in those in which the patients experience at the moment when the effusion occurs, a species of crepitation in the pained part. Besides, instead of being astonished at the slight variation in the pain in the different patients, we ought to be much rather surprised that it was not more considerable. Thus it was quite as great in a female, the subject of one case, as in the others, although the material cause in the first was only a very small tubercular abscess, which had discharged itself into the pleura, without communicating with the bronchi; whilst in



the other the abscess, or broken down tubercle, was considerable, and communicated with the bronchi.

The sense of suffocation and anxiety appeared to be proportioned to the pain : they were extreme in three cases where the pain was very great, and much less in a fourth where it was much more inconsiderable ; and yet the subject of the last case could not undergo the least movement, without being threatened with fainting. She also was an object of interest with regard to her paleness, which was extreme, notwithstanding the sudden obstruction which had occurred in the circulation through the lungs, and also with respect to her position in bed, which was always on the right side, with the head low, whilst the other patients remained in the sitting posture.

The interval which elapsed between the period of the perforation and that of death is also worthy of some attention. The fatal termination occurred 24, 72 hours, 20 and 36 days, in different cases, after the first symptoms of perforation ; and yet it was by no means easy to account for these great differences.—The greater or less strength of the patients at the time when the perforation happened, will not account for it ; for one woman who died in 72 hours, was, according to every appearance, as strong as the subject of another who did not die until the 36th day. Neither will the difference of treatment account for it, as the last-mentioned patient remained the three first days following the perforation at home, suffering under the most acute pain, and without assistance. The only thing which could remain for the explanation of the fact in question, would be the difference observed in the size of the broken down tubercle, and consequently in the greater or less quantity of the fluid which had been discharged into the pleura ; but this difference only increases the difficulty, as in one case, where death occurred 72 hours after the perforation, the tubercular cavity was very small, without communicating with the bronchi, and had only poured into the pleura a very small quantity of fluid. I have dwelt on these details, because they are useful in the prognosis ; and it is important for the physician to know that such an accident, mortal in its nature, may be so in a few hours, or not until the expiration of some weeks, without our being either able to foresee, or to account for the difference.

The situation of the perforation was to us the same in the four cases ; viz. towards the angle of the third or fourth rib : and this fact is deserving of notice, both as regards the pain which was felt in the same point, and because it is in harmony with another fact, viz., that in phthisis pulmonalis the lesion proceeds from the summit to the base of the lung, and is always more ad-

vanced in the first than in the second situation. Moreover, if we only found on the same lung a single aperture establishing a communication with the cavity of the pleura, we ought not to forget, that in several cases there was at the external surface of the same organ a considerable number of yellow and white spots, corresponding with so many broken down tubercles, and which were only separated from the pleura by the distance of the 300th part of an inch, and were on the point of breaking into its cavity. Now, if we reflect that this disposition is very frequently met with, we may be surprised that the accident of which we are speaking is not much more common. In a considerable number of cases we are inclined to believe this is prevented by the adhesions of the pleura between each other. It is not, in fact, very uncommon to see the tubercular matter of the lungs applied immediately upon the ribs, or appear through the intercostal muscles as far as the sub-cutaneous cellular tissue ; and in such case it is very clear, that without the adhesions of the pleuræ between each other, the tubercles, in place of slowly proceeding externally, would have broken into the pleura, and considerably accelerated the death of the patient.

There is another fact in pathological anatomy which deserves to be recollected, viz., the promptitude with which the effusion of a serous fluid more or less turbid or bloody occurred in certain cases : thus in one female who died twenty-four hours after the perforation ; it was considerable, and, nevertheless, twelve hours before death percussion rendered a very clear sound over all the affected side, so that the effusion must have occurred in less than twelve hours. The same thing was observable in another case where the exhalation of fluid was not less rapid. These facts, however, comprise nothing very extraordinary : on the contrary, they confirm what is already known regarding the promptitude with which effusion takes place in many cases of pleurisy and other affections. I may remark, that in one case where death occurred in 24 hours after the time of the perforation, the lung and cavity of the chest, in their whole extent, were covered with a false membrane, probably already organized.

I shall purposely abstain from every reflection foreign to the subject ; observing, however, that in every case the stomach presented lesions more or less extensive, which were indicated by particular symptoms : and I may remark, in conclusion, that the four cases of perforation on which the above reflections have been founded, were observed out of 82 subjects of phthisis pulmonalis, whose dissection was performed with the greatest care ; whilst of the same number of individuals, I have not once observed pneumo-thorax without perforation.—*Lond. Med. Rep.*



## IV. MATERIA MEDICA AND PHARMACY.

## M. BALLY on Morphine.

The *Revue Medicale*, for Feb. 1824, contains some observations, extracted from a Memoir, by M. V. Bally, on the employment of acetate of morphine in several diseases. He has, for the most part, used morphine in combination with acetic acid, which renders it soluble without neutralizing its active properties. He prescribed it in the form of pill, because of the greater certainty in dividing doses, and the greater degree of purity in which it is preserved. He commenced, sometimes, with one eighth, but generally with one fourth grain night and morning: this dose rarely produced powerful effects, and it was found necessary to increase the quantity as the sensibility to its action diminished. When the doses are already large, it is remarkable that they may be increased more rapidly, and in a higher ratio. Small graduated doses do not produce any effect on the mouth, pharynx, and œsophagus, although their action on the brain and stomach is powerful. When the quantity has reached the amount of six or seven grains given at two doses in twenty-four hours, nausea generally appears, with, occasionally, pains at the epigastrium. Two cases are noticed, in which smaller quantities produced symptoms of slight gastritis. When such appear, the dose should be diminished, or the medicine be for a time discontinued. On resuming it, considerable varieties present themselves; some patients being more susceptible, and others less so, to its effects. The same variety exists in its operation in the intestinal canal; constipation is a common symptom, but is often succeeded by diarrhœa, which ceases with the cessation of medicine. M. Bally has convinced himself of the vermifuge properties of the acetate in several instances: when not administered with any such intention, it has caused, in many patients, the expulsion of lumbricoid ascarides, by vomiting or by stool. He has observed that it, (the acetate) does not act directly on the kidneys, in which the patients do not feel either pain or weight. He is also inclined to think that the frequent micturition succeeding its use, is caused rather by irritation of the bladder and its neck, than by increase of secretion. He states, that 19-20ths of the males to whom it is administered, experienced difficulty in making water, and often retention so complete as to require the use of a catheter. Frequently the patients strain for several minutes, the water suddenly flows, then as suddenly stops, alternately in this way until the bladder is emptied. He considers that these symptoms may be produ-

ced by paralysis of the body of the bladder, contraction of its neck, or tumefaction of the prostate. He has not observed anything similar in females, and asks, is this to be attributed to the shortness of the urethra, to the absence of the prostate, or to what? The dose capable of producing these effects, differs considerably, in some cases 3-4ths of a grain, in others not even five grains.

It is generally admitted that opium augments the force of the circulation; M. Bally's observations tend to prove that the acetate of morphine has not the same effect. In several cases it diminished the force and hardness of the pulse. If during its employment the pulse should become hard and frequent, the symptom depends on the occurrence of inflammation of the stomach or some other organ. It has not in any case tended to excite the appearance of hemorrhoids or the menstrual flux. It does not produce any injurious effect on the pulmonary system; neither cough nor hæmoptysis. In general it may be said to lower rather than increase the circulation through the gastric and thoracic systems. Neither does it produce sweating or any increase of animal heat. It causes however, an uncomfortable pruritus, more common in females than in males, and sometimes attended with an eruption of small conical pimples. Its principal action is upon the encephalon, determining either serious irritation there, or congestion, or hemorrhage. If, says M. Bally, by the term narcotism, we are to understand stupor, the acetate of morphine has not any claim to be called narcotic: the case is otherwise, if, as commonly happens, the term narcotism be meant to include the symptoms of an excited state of the brain, as vertigo, dimness of sight, tinnitus aurium, &c. A dose of less than 1-4 grain does not cause any marked affection of the brain, except in very irritable subjects. But above this dose, vertigo, &c., appear on the second or third day, often within a quarter of an hour of taking the dose, and in a degree proportioned to its quantity. Larger doses produce other effects, but of the same nature. One man with aneurism of the heart, was in a state of *coma vigilium* apparently in a state of profound stupor, he heard and saw every thing going on about him; others thought they saw every thing about them whirling round, and staggered as though intoxicated: the vertigo was more considerable in the vertical than the horizontal posture; in the latter, subsultus and convulsive motions of the head backwards, were more common. In the midst of these symptoms, however, M. Bally remarked that delirium and affection of the mental faculties never succeeded the use of the acetate, even in large doses, except when they happened to be connected with the patient's disease. The energy of muscular motion is diminished



by its use, as a consequence of its action on the brain, but however long continued, it never causes muscular tremblings. One of the most usual effects is, diminution of the power of vision, in so much that several patients were unable to read. Lastly, the greater number of the phenomena succeeding to its administration, were more strongly marked in the spring than in any other season.

The Editors of the *Revue Medicale* have added some experiments made by M. Chevalier on himself, (in a state of health,) with the acetate of morphine, and differing somewhat in their results from the observations of M. Bally. The following are the conclusions deducible from them.—1. That it (the acetate) produced irritation of the throat, thirst, and redness of the tongue. 2. That it caused a certain degree of inconvenience in respiration, and even some painful feelings in the chest. 3. That it had always the effect of rendering the pulse strong and quick. 4. Other phenomena presented themselves corresponding with those observed by M. Bally, such as various cerebral symptoms, pruritus, eruptions, &c.—*Quarterly Journal*.

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DR. CARTER'S *Remarks on the Balsam of Peru*.

Hamet Elms, ætatis 41, married, labouring under extreme debility, and whose mode of life and poverty were much against her; took the bals. Peruv. in pills thrice a day, followed by a draught with bark, confect. aromat., and sp. lav. c., for three months, and was much benefited. It is to be observed that she had before taken bark alone, but with little if any advantage.

Mary London, a middle aged, married woman, suffering under all the symptoms of dyspepsia, took bals. Peruv. gr. vj. three times a day, and a powder with four grains of rhubarb, five of calumba, and five of dried soda, at noon, for some weeks, and received much benefit.

Ann Lyon, æt. 42, labouring under chronic debility, took bitters with vinum ferri, and tinct. card. c., in the day, and camphor with æther, and tinct. hyoscyami, at night, without relief of symptoms.—The pills of balsam of Peru, and decoct. cinch., with æther and spirit. lav., seemed to be of service after they had been taken about seven weeks.

Sarah Williams, æt. 40, labouring under chronic debility, and symptoms of incipient phthisis, took the balsam at first with a tonic mixture, and afterwards with inf. rosæ, acid. sulph., and tinct. card. c., for two months, and was discharged, cured.

In cases like these, as in many others, great patience is needed on the part of the invalid and the Physician. Half our failures, I am persuaded, are attributable to want of perseverance.—*Lond. Med. Repository*.

## MEDICAL LITERATURE OF THE UNITED STATES.

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*The Medical Recorder.* VOL. VII. NO. IV.

ART. I. *On the Epidemic Fever of the Mississippi.* By SAMUEL A. CARTWRIGHT, M. D.

This paper is said to have been presented for the premium awarded by the proprietor of the Medical Recorder.

ART. II. *Cases of Consumption.* By J. E. COOKE, M. D.

The object of this paper is to show that consumption is not so incurable as is generally imagined. Dr. Cooke's patients were bled, blistered frequently on the chest, took emetics of ipecacuanha occasionally, and every day a pill of one or two grains of the same medicine. They were restricted to the most abstemious diet. The evidence in favour of this mode of treatment, which has been published by Dr. Cooke, is too limited to gain our implicit confidence.

ART. III. *Case of Tumour on the Jaw.* By THOMAS HUNT, M. D.

In this case, the excision of a portion of the jaw bone was accomplished, and the passage from the parotid to the mouth being obstructed, the functions of the gland were destroyed by pressure.

ART. IV. *Case of Ovarian Dropsy.* By T. D. MITCHELL, M. D.

There is no disease more likely to baffle the diagnostic talents of the physician than ovarian dropsy. It has been mistaken for disease of the liver, bilious colic, scirrhus uterus, disease of the mesentery, &c. On this account we deem the history of the case, and dissection, as given by Dr. Mitchell, instructive and important.

ART. V. *On Stricture of the Urethra.* By H. G. JAMESON, M. D.

ART. VI. *Case of extensive Wound of the Neck.* By JOHN WALKER, M. D.

After giving the history and successful issue of an extensive wound of the neck, Dr. Walker has given some rules applicable to the treatment of such wounds. He observes that they should not be closed while any oozing of blood continues, that the sutures should not be passed through the trachea, but introduced at a greater distance from the lips of the wound than is customary, that the introduction of a flexible catheter, into the larynx is unnecessary, and that a catheter or bougie should be introduced through the mouth into the œsophagus.

### REVIEWS.

ART. VII. *Dublin Transactions.* VOL. IV.

ART. VIII. *On the Anatomy of the Human Ear, with Surgical Remarks.* By THOMAS BUCHANAN.

ART. IX. *Transactions of the Associated Apothecaries and Surgeons' MEDICAL JOURNALS.*